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LECTURES ON DERMATOLOGY.

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LECTURES ON DERMATOLOGY;

DELIVERED IN
THE ROYAL COLLEGE OF SURGEONS OF ENGLAND
IN 1876—1877—1878.

LEEDS & WEST-RIDING
PHYSICO-MEDICO-SURGICAL SOCIETY
INCLUDING

DERANGEMENTS OF COLOUR OF THE SKIN; TOGETHER WITH
AFFECTIONS OF THE NAILS; HAIR SYSTEM, AND
CUTANEOUS GLAND SYSTEM.

BY

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LONDON:
J. & A. CHURCHILL, NEW BURLINGTON STREET.

1878.



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P R E F A C E.

THE present volume concludes the nine courses of Lectures delivered by the Author in the Royal College of Surgeons of England. The Chair of Dermatology was founded in 1869, and inaugurated during the following year; and the appointed course of six Lectures has been delivered annually in the months of January and February. With the course of 1878, the limitation of the Chair to Dermatology alone, will probably cease; it is intended to enlarge the scope of the endowment, and without excluding Dermatology from the field, to embrace original work in every department of surgical pathology.

In the course of his pursuits, the Author had accumulated a considerable collection of objects, illustrating nearly every department of Dermatology; this collection became the property of the College on the endowment of the Dermatological Chair, and has served as the text of the Lectures which have just been concluded. The Author, as his original design, contemplated the review of the whole series of diseases of the skin; to this plan he has faithfully adhered, and the last course of Lectures completes

his intended scheme. Commencing with *inflammation*, common and specific, he proceeded, in the next place, to disturbances of *nutrition*. To these followed other derangements of function, affecting the *nervous* system and the *pigment* system; and, finally, disorders of separate parts of the integument; for example, the *epidermis* and *nails*, the *hair*, and the *glands* of the skin.

The last three courses of Lectures, which constitute the material of the present volume, are devoted exclusively to aberrations of pigmentation, to disorders of the epidermic system including the nails, to the hair and its follicles, and to the glands of the skin, sebaceous and sudatory.

The Author has aimed to fix Dermatology on a steadfast foundation, for which purpose he has selected PATHOLOGY as the groundwork of his descriptions and classification; whilst he is enabled to appeal for his proofs to the illustrations contained in the Dermatological Collection. Pathology, likewise, must be regarded as the only reliable basis of a scientific as well as a sound and trustworthy scheme of therapeutical treatment; and to this point, as one of the most essential importance, he has directed his especial attention.

LONDON, September, 1878.

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LECTURES ON DERMATOLOGY.

DISORDERS OF COLOUR OF THE SKIN.

MR. PRESIDENT AND GENTLEMEN,

My former courses of Lectures on Dermatology, six in number, have been devoted—

First, to a synopsis or general review of the whole of the diseases of the skin;

Secondly, to diseases having their origin in common inflammation;

Thirdly, to diseases consequent on blood poisoning;

Fourthly, to diseases dependent on aberration of nutrition; and

Fifthly, to diseases proceeding from faulty innervation.

It is, of course, to be understood that no one of these groups is strictly limited in manifestation to the definition which I have selected for its description, but simply that the definition represents its principal characteristic. Thus, although the first of our groups is denominated “diseases of common inflammation,” it must be admitted that inflammation, to a greater or less extent, prevails in all the rest. The diseases of blood poisoning are necessarily associated with inflammation, which, from the nature of its cause, is termed “specific.” Again, diseases of nutrition and innervation are likewise more or less attended with common inflammation; while common inflammation itself is always associated with disturbance of nutrition and innervation.

Disease, like health, involves a regular concatenation of processes, in which no one link can be considered as independent of the rest, and for this reason grouping or classification of disease can never be absolute, but must be taken to represent the major cause alone. It not unfrequently happens that the determination of the major cause will give rise to differences of opinion, in which case judgment and experience can alone settle the dispute. Let me illustrate this proposition by calling to your mind an instructive example:—Herpes is generally recognised as an eruption of neuropathic origin, as instanced by herpes zoster, and is often associated with a very severe form of neuralgia, hence it might be regarded as a neuropathic affection; but in the majority of cases, herpes occurs without any pain whatever, and with all the symptoms of common inflammation; we therefore, for that reason, retain it in the inflammatory group, and the more so as we must endeavour to make our neuropathic as well as our other groups as precise as possible. The balance of evidence in the case of herpes inclines in the direction of inflammation rather than in that of neurosis.

A case, illustrating the complex pathological relations of zoster, is at present under my observation, and may serve to further elucidate my proposition. A healthy woman, aged 38, complained of weight in her chest, which was clearly attributable to gastric disorder or dyspepsia. When this sense of uneasiness and discomfort had continued for two months she contracted a chill, and the chill caused neuralgia of the back of the chest immediately to the right of the spine. Two days later the neuralgia assumed an intense degree of violence, extending from the point first attacked to the sternum, and destroyed rest and sleep for three days. The pain was relieved by the development of shingles along the course of two of the intercostal

nerves, the train of the eruption curving beneath the right mamma, and following, as is usual, the outline of the ribs. Being much exhausted by pain and want of rest, she was ordered wine, brandy, and tonic remedies; stimulants, although taken in very small quantity, produced an unusual degree of exhilaration, accompanied with erythema and swelling of the eyelids and face and bright red erythematous blotches on the neck, upper part of the chest, and arms. These symptoms subsided in about a quarter-of-an-hour, but were repeated every time she took a stimulant, for three weeks. After the neuralgia and its concomitant morbid sympathies had ceased, the weight and uneasiness in her chest returned, accompanied with an erythematous eczema, which was scattered in patches over her face, neck, chest, and arms. The eruption was no longer the evanescent erythema of the previous stage of the attack, but had assumed the permanent character of eczema, and she was led to seek my advice. My narrative will illustrate the diagnosis I was led to form of the case, and a few doses of medicine carried away both the weight from the chest and the eczema from the skin. Urticaria is another example of a similar nature, the predominant symptom of nettlerash is obviously of a neurotic character, namely, the vexatious pruritus; but, on the other hand, the alliance between urticaria and erythema is so intimate that it becomes absolutely impossible to sever them asunder; hence urticaria is retained among the inflammatory affections, of which erythema is a conspicuous member.

On the present occasion, looking prospectively, instead of retrospectively, we have before us, to complete our synopsis and for further enquiry, the chromatopathic or pigmentary affections, involving the study of the aberrations of an important function of the skin, pigment formation; the epidermic and onychopathic affections embracing the diseases of

the epidermis and nails ; trichopathic affections, the diseases of the hair and hair-follicles ; and affections of the proper glandular structure of the skin, the sebiparous and suboriparous glands, constituting the groups of steatopathic and idrotopathic diseases.

CHROMATOPATHIC AFFECTIONS.

CHROMATOGENESIS OR CHROMATOSIS.—The production of colour is one of the functions of the integument, and its importance may be inferred from its universality amongst mankind, as well as throughout the whole of organic nature. It is present in every member of the human race, and is subject to variations among different nations and in different parts of the globe ; these variations having reference partly to the wants of the skin, and partly to the state of the economy of the individual. The source of the pigmentary colour of the skin is the haematin of the blood, and the variations of its tint and shade are due to the plus or the minus of that element. So that, although the colour of the different nations of the globe varies considerably, the whole of its varieties may be comprehended within the limit allowed by the pigmentary constituents of the blood, ranging, in fact, between the yellow of serum, of urine, and bile, and the deep black of the choroid membrane of the eyeball.

The most obvious of the causes associated with variation of colour of the healthy skin are, heat and light, cold and darkness, dryness and moisture ; these are conditions present in the different climates of the world ; but there are other causes which originate in the state of activity of the functions of the individual, and likewise in his state of health. How shall we determine what is the proper standard of colour in the human race ? Although we may, with apparent reason infer, that as man was created without clothing, the colour which his integument

would assume in a climate where clothing continued to be unnecessary for his comfort and health should be the real standard of colour of mankind. From such a zonal line encircling the earth, we might conclude that the deeper tint of the tropics would be above, and the paler hues of northern nations below the normal average. Pathology vindicates this idea, for aberrations of pigment are more frequent in the extremes of climate than they are in the intermediate or moderate zone.

Among the dark races of mankind, the suspension of the function of pigmentation on parts of the skin of greater or less extent, is not a very rare phenomenon; whilst among the fairer races, the deviation, when it occurs, is generally in the opposite direction. In the dermatological collection of our College, we have several illustrations of absence of colour or achromia, as it is apt to show itself in the negro and inhabitants of tropical countries, for example:—

No. 495 is a mount, exhibiting nine photographs of negroes affected with achromia or leucasmus. They are all of true negro blood, and afford a good illustration of the *pied* or *piebald*, or Albino negro; as he is met with in West Africa, in his native climate. The achromia presents considerable variety as to extent, and is remarkable for the symmetrical distribution of the colourless blotches.*

Figures 1 and 4, represent a negro, forty years of age, in whom the chest, shoulders, and back of the arms and thighs are speckled with white in a very remarkable manner.

Figures 2 and 5, illustrate achromia, likewise in an adult negro; the affection is less in extent than in the former, but there is a curious patch of white on the summit of the head.

* The photographs were taken at Lagos, in West Africa, and were presented to the Museum in July, 1872, by J. H. Jeans, Esq., Colonial Surgeon.

Figures 3 and 6, represent an adult negress. The white is more extensive than the black, and is especially conspicuous on the abdomen, the midline of the back of the trunk, and the extremities, while the hands and feet are perfectly white.

Figures 7 and 9, represent a negress of a lower type than the former ; the achroma is general in its distribution, but not so complete.

Figure 8, is a young Albino negress, perfectly white, the achroma is both general and complete. Her eyes are said to have been brown.

No. 497 is a photograph, exhibiting a front and back view of a *negro* presenting a *piebald* character. The black pigment is most abundant on the back of the trunk and neck, the hands, and the feet ; while it is absent in the middle line of the forehead, and to a considerable extent on the front of the trunk, the upper arms and shoulders, and the legs.

No. 496 is a water-colour drawing of a *piebald negro* boy. He was born of black parents in the West Indies, and presented at his birth a curious mixture of melasma and leucasmus or achroma, a state of partial albinism. At the age of fifteen months this boy was consigned to Richardson, the strolling "showman," by whom he was exhibited at country fairs and most tenderly cared for. The picture from which the drawing was made is preserved in the vestry of the church of Great Marlow, in Buckinghamshire, where also may be seen a monument bearing the following inscription :—"To the memory of George Alexander Grattan, the spotted negro boy, a native of the Caribbee Islands, in the West Indies, who departed this life February 3rd, 1813, aged four years and nine months ; this stone is erected by his only friend and guardian, Mr. John Richardson, of London." His skin and woolly hair were party-coloured, transparent brown and white ; there were several figures of triangular shape, one within the other, on the head, and a

broad band of white descended from the crown of his head over the forehead, nose, and lips, to the chin, while the cheeks and the rest of the face were black. On the limbs the white predominated over the black, the latter presenting a large blotch over the scapula, another over the deltoid, one of considerable extent upon the forearm, a large patch around the knees and ankles, and scattered minor spots in the intermediate space and upon the back of the hands and fingers. He was well proportioned in figure, a bright and intelligent child, but being attacked with a swelling of his jaw he shortly after died.

No. 590 is a recent contribution to the Dermatological collection by Mr. Darwin; the photograph was sent to him by Mr. E. A. Long, a native of Alabama, in September, 1877; and is that of a black and white negro boy, aged six, born of healthy negro parents, in the southern part of America. He was brought to Liverpool for exhibition, but died two weeks after his arrival, of inflammation of the bowels, preceded by intermittent fever. He had been healthy and sprightly up to the time of this attack. His eyes were blue, and the colour of his skin decided black and white, without blending or intermediate tint. His fate reminds us of that of Richardson's spotted boy; and is suggestive of a lurking debility of constitution in these achromatous examples of the human race. In this boy the white predominates considerably over the black; the latter occupying nearly the whole of the face, the sides of the head, and the neck; on the back, a narrow band of intense black descends between the scapulæ, taking the course of the spine, and spreads out over the loins and buttocks, where it ends abruptly, and has the appearance of a closely fitting garment.

Another and a peculiarly well-marked instance of a similar kind, and one which may be said to pos-

sess an historical interest is shown in the portrait which I now present to you. This case I described in the first course of these lectures, in 1870 (page 110); and I will now quote from the remarks which I then made:—

“In volume xx. of the ‘*Histoire Naturelle, generale et particuliére*,’ of Baron de Buffon, may be found certain communications made to that distinguished naturalist by M. Taverne, burgomaster and sub-delegate of Dunkirk, in the year 1772. He says:—‘I send you, sir, a portrait which was found in an English prize, captured in the last war by the corsair *La Royale*, in which I was interested. It is that of a little girl who was partly black and partly white. The hands and feet are entirely black, the head is the same, with the exception of the chin, including the lower lip and a part of the forehead; the front hair or wool is also white, and there is a black spot in the middle of the white blotch upon the forehead. All the remainder of the body, arms, legs, and thighs, is marked with black spots of various size, and upon the larger black spots are seen smaller ones of a blacker tint still. From the figure of the spots the child may be likened to a dappled or piebald horse, and the black and the white are blended imperceptibly by a mulatto tint.’”

A few weeks later, M. Taverne, writing to Buffon again, observes:—“The original of the portrait* of the black and white infant was discovered on board *Le Chrétien*, of London, bound from New England to London. This ship was captured in

* From the context, and from some differences between the painting and Buffon’s engraving, I am inclined to believe that the true reading of these words should be, “the original portrait,” instead of “the original *of the portrait*,” which must refer to the child herself, of whom we find no further mention. The history of this picture, which is now in my possession, must be curious; but I have been unable to unravel it further. It was offered for sale to the College of Surgeons, but, failing a purchaser, was brought to me.

1746, by the vessel *Comte de Maurepas*, of Dunkirk, under the command of Captain François Meyne."

Buffon publishes an engraving taken from a copy of this picture. In the right hand corner of the canvas is an ornamental scroll, on which is inscribed the following legend:—

"The true picture of Maria Sabina, who was born Octr. 12, 1736, at Matuna, a plantation belonging to y^e Jesuits, in y^e city of Cartagena, in America, of two negro slaves, named Martiniano and Patrona."

Instances of this kind are scattered among the West Indian Islands; as they are on the coast of Africa, and the islands of the Indian Ocean, and the persons so affected are known as Albinoes, Dondos, Bedas, Chacrelas, &c. Bedas being the name given to them in Ceylon, and Chacrelas, from a spotted insect of that name, in Java. The variegated skin is also met with among the natives of the West Coast of South America and Mexico. In the former it is termed Carate, whilst in Mexico the persons so affected are called Pintos, that is, painted men, or Pinto Indians; and would appear to be numerous, as it is stated that the Mexican General Alvarez, surnamed the "panther of the South," had a body-guard of Pintos. The normal colour of these people is a rich copper brown, and their spotted condition is congenital.

In northern countries, as in Siberia, piebald people are also found,* but the spots are brown instead of being white; they are described as being rough and harsh, whilst the rest of the skin is smooth and soft. Albeit a more remarkable alienation of colour is also met with in these regions in a people who are believed to be descendants of a nation called Piegaga or Piestria-Horda, that is, Piestria, the variegated or tiger-skinned horde. In these persons, besides the pale, or rather the grey skin of a northern race, sprinkled with brown spots,

* Schreber, 'Histoire Naturelle des Quadrupedes,' 1775.

there is sometimes observed a state of achroma; Schreber, for example, states that he saw a man with one side of the head white, while the other was black. The piebald negro is usually a congenital phenomenon; it is believed to occur by preference among negroes recently exported from Africa, and is thought to be more particularly prevalent in unwholesome, damp, and malarious countries, such as New Granada and Cartagena. That it is a less common occurrence in the interior of Africa we are led to infer, from the recent exhibition of an Albino negro, apparently a rare curiosity, by Mtessi, a potentate of Central Africa, to Colonel Long, Commissioner from the Khedive of Egypt. The report is dated November, 1874, and the date of Colonel Long's visit to Uganda was the summer of the same year.

Buffon, in the supplement* to his 'Histoire Naturelle,' gives an engraving of a young negress, aged eighteen, who was born in the West Indian Island of Dominica, of negro parents. She was a perfect Albino, as complete as the one represented in the mount, No. 498, fig. 8. He likewise records a case even more interesting to pathologists than those already mentioned, namely, one of accidental or acquired achroma occurring likewise in a negress. Her name was Françoise, she was forty years of age, apparently healthy, and in the service of Colonel Barnet as cook. Her history is derived from a letter addressed to Mr. Alexander Williamson by Mr. James Bate, and bears date June 26, 1760. Françoise was born in Virginia, and, as a child, was perfectly black; at the age of fifteen the skin around the nails became white, and soon afterwards that around the mouth. Then the whiteness appeared on her body and limbs, and, at the age of forty, occupies four-fifths of the whole body, where it is as soft and transparent as that of the most

beautiful European, and permits the colour of the blood-vessels to be seen through it. The regions where the normal hue of the skin lingers are:—that of the spinal column and the neck. The pudendal region and axilla are variegated; her hair is quite white. She was confined in child-bed at the age of seventeen, but has never had illness of any other kind.

This case of accidental or acquired achroma, of which there are several cases on record, has a singular parallel in the case of a pied-negro horse (*elster nèger*) described by Dr. Beigel. This horse was sent from the Cape of Good Hope to Mr. Moffat, and was exhibited at the Crystal Palace. The animal was deemed curious from being utterly bald. For the first year of its life its colour was deep black, with, in some parts, a tinge of dark blue. Mr. Moffat then observed a light spot under the left eye; this increased in size, and was succeeded by the appearance of similar spots scattered over its body; the achromatous blotches increased rapidly in number and extent, so that at the age of four years, the time of its exhibition, the bleaching of the skin occupied more than half of the entire integument. The face and head were entirely colourless, as were the posterior two-thirds of the trunk; the pigment still lingered on the neck, shoulders, and legs, but even here was dappled with achromatous spots; the hairless tail was white with a line of black patches along its side, and the hairless crest, which should have been surmounted with a mane, was also white. Dr. Beigel remarks that the bleaching was still advancing, and there was reason to expect that the entire body would, in a short time, become white, or rather, achromatous; for, as he observes, the blotches are not absolutely white, but have a delicate rose tint. The horse was not deficient in form, condition, or power, but never perspired even after the strongest exercise; and, in

the winter time, as if to compensate for a winter's coat to preserve its warmth, exhibited a strong predilection for oil and meat, as food.

Cases such as these carry our minds onwards to the contemplation of the variegated distribution of colour met with in the rest of the animal kingdom as well as in the vegetable kingdom. Failure of function denotes a deficiency of vital power, and hence we may assume that the cause of achroma is pathological. That it does not affect the strength or health of the rest of the economy is simply an admission that one function, or a part of one function, may be impaired, without injury to the rest of the organism; and we may further comprehend that such an aberration may be so firmly rooted in the system as eventually to become hereditary without any other defect of constitutional power being present. If we inquire into the health of the individual in the examples which have come before us, we may possibly hear that their health and strength were unexceptionable; but, however true this may be in particular examples, and especially in hereditary achroma, there is no doubt in my mind that abnormal variegation must be looked upon as a disease. In our gardens, the variegated plant is generally a tender and a weakly plant; the absence of colour is usually the result of defective nutritive power; and to preserve the beauty of their variegated hues we are careful to avoid nourishing them too abundantly; for in a rich soil, which promotes luxuriance of growth, their pigmentary charms are frequently destroyed.

Assuming, therefore, that aberration of pigment in the skin is chromatopathic in its origin, whether it present itself in the form of excess or diminution, of melasma or achroma, let us inquire into the nature of the causes conducive to those conditions. Heat and light, as we see exemplified in the agency of the sun, are both of them stimulants of the vaso-

motor and trophic nervous system of the skin; they increase the quantity of blood and consequently of haematin in the cutaneous vessels, and are, therefore, stimulants and promoters of pigment-formation; hence the deeper hues of the complexion in the sunny South and pathologically the pigmentary spots and blotches of the skin which we term ephelis or sunburn, lentigo or freckle, and the melasmata which result from the action of artificial heat. But the combination of light with cold likewise exerts a powerful influence in the production of pigment in the skin.

In one of our models, No. 100, representing the incrusted stage of impetigo on the face of a lad, 16 years of age, the artist has given us an admirable representation of *lentigo* or *lentigines*, common sun-freckles, so frequent in the sensitive skin of young persons. We have likewise before us a good illustration of the same affection in one of Alibert's plates. These spots have been compared to lentils in shape and colour, and are also called *lenticulae*. They are found on the parts of the skin ordinarily exposed to the light, and being more frequent in summer than in winter, are termed by the Germans "sommersprossen." They begin at the aperture of a follicle where the capillary plexus is richer than elsewhere, and by their increase the altered pigment of several follicles becomes blended into one lenticular spot. The pigment is usually yellow in colour, especially in persons of fair complexion; in darker skins it is greenish and brown, and sometimes perfectly black. In the former case it would fall under the designation of xanthochroia; in the latter under that of melanochroia or melasma.

Now, assuming, in the case of summer freckles, the primary factor to be the sun and light acting on a sensitive and excitable skin, the successive phenomena would be as follows: first, paresis of the vaso-motor nerves from over-stimulation; next, conges-

tion of the capillary vessels; thirdly, stagnation, and probably impaction of some of the blood corpuscles; fourthly, solution of the haematin of the injured blood disks in the serum; fifthly, absorption of the haematin solution by the cells of the rete mucosum; and, sixthly, the concentration of the pigment in the form of granules within the cells. A similar process, with the exception of the exciting cause, which is internal instead of being external, will explain the formation of the cold freckle.

The summer freckle may be considered as the consequence of a *chemical* cause, the heat and light of the sun's rays operating on the skin. We have likewise other instances in which the chief agent is heat without light, as in the remarkable mottling of the legs of French peasant women, who have recourse to the "chauffrette" as a means of warmth. And these examples lead us on to a form of pigmentation which is *mechanical* in its cause, namely, a congestion of the capillaries of the skin, consequent on obstructed venous circulation and varicose veins.

Those pigmentary blotches so often met with on the shin, ranging through every tint and shade of colour, from bright yellow to brown, green, and black, are due to capillary congestion of the veins; and of a similar nature is the mottling exhibited in the drawing and lithograph numbered:—

491 and 492; the former is described as an instance of melanopathia, a water-colour study of a partial melasma of the leg in a young woman, aged 23. The melasma, of a rich brown colour, follows the course of the superficial plexus of cutaneous veins, and forms a corresponding retiform plexus (*melasma retiforme*) on the surface of the skin. The pre-disposing cause of the discolouration was, very probably, interruption of the venous circulation of the lower limbs, and consequent congestion of the minute venules which empty their contents into the superficial venous plexus. The discolouration had

been in existence for six months at the time the drawing was made.

The aberrations of colour of the integument, which depend on irregularities of function of the internal organs of the body, are even more interesting to the pathologist than those examples to which I have already alluded. It is a well-established fact that a shock to the nervous system will induce a state of melasma or excess of pigment in the skin. In such a case as this, heat and cold, light and darkness, dryness and moisture are free from all imputation of blame; the cause must come from within, and may fairly be presumed to be a fault of the nervous system. Let me take an example, which seems, at first view, to trench more on physiological than on pathological ground, but which I should, nevertheless, regard as strictly pathological. Every time a woman menstruates the eyelids become dusky in a greater or less degree, sometimes, as we know, in a very remarkable manner. After menstruation the skin gradually returns to its lighter tint, but is ready to undergo a similar change on the recurrence of the periodical function. In painful menstruation the tint of discolouration will very possibly be deeper, and the same occurs in pregnancy. But in the latter state it is not the eyelids alone which are deepened in colour, constituting what we term melasma palpebrarum, but the areola of the nipple presents a progressively increasing blackness of hue. Are we not justified in believing that a nerve irritation, having its seat in the uterus, is the remote cause of this excess of pigment in the eyelids and areolæ mammarum?

Let us take a similar case, and observe its practical application. A young lady presents herself before her physician, with swarthiness of the eyelids in conjunction with other symptoms of disordered health. We are led by this observation to infer some derangement of the menstrual function,

and our inquiry discovers a dysmenorrhœa. In like manner, certain pigmentary blotches of the skin are referable to the sensitive condition of the uterus present in pregnancy, and are termed chloasmata.

There can be no doubt that disorders of other organs of the body, and especially the abdominal organs, as being largely supplied from the organic system of nerves, are equally accompanied with aberration of pigmentation in the skin. A remarkable example of this kind is met with in that morbid change and disorganisation of the suprarenal capsule, which is termed Addison's disease. The suprarenal capsule is enveloped in a network of organic nerves, has similar nerves in its structure, and is in close proximity with the semilunar ganglion and the great centre of the solar plexus. If a transient irritation of the uterine plexuses in painful menstruation be capable of giving rise to an aberration of pigment, how much more may we expect it in a disease attacking the great centre of the organic nerve system itself, and where, as a consequence, there results not only aberration of pigment in the integument, but likewise an arrest of sanguification as shown by the concurrence of anaemia.

An important question here arises as to the relations subsisting between anaemia and pigmentary accumulation in the skin. It may be stated as a rule, with few if any exceptions, that when excess of pigment is met with in the skin, there is likewise a deficiency of blood, or rather of the red corpuscles of the blood, in the vascular system. It would therefore appear, that affections of organs implicating seriously the organic system of nerves are capable of suspending the normal process of sanguification, and thereby producing anaemia, and this idea is corroborated by the researches of Freerichs of Berlin, who found that in disease of the spleen, the blood corpuscles contained in the splenic

vein were shrivelled in appearance and converted into a black substance, mingled with pigmentary granules. In this case a very considerable amount of the pigment was detained in the liver, and gave rise to a condition which was termed by him "pigmentary liver."

Of a kind of aberration of pigmentation of the skin due to constitutional causes, probably to serious organic disease, and having a fatal issue, is the next of our illustrations, namely:—

No. 493, which is a water-colour study, and No. 494, a coloured lithograph, of general melasma, with partial melasma and partial leucasmus. The patient had been growing darker in complexion of skin for some years, and the dyschroma had become more decided during the seven years preceding the record of his case. A large irregular blotch of melasma may be seen on the left side of the chest, and the areola of the nipple on that side is almost black, while on the opposite side the nipple is bleached, and leucasmic patches may be perceived on the shoulder, neck, and face. The apparent exciting cause of these phenomena was a derangement of health induced by drinking cold water and the immersion of the body in cold water when the system was heated by exercise and considerably fatigued. The leucasmus made its first appearance on the tips of the fingers, as is very commonly the case, seven years before, when the patient was seventeen years of age. In the lower part of the drawing the right nipple has been delineated, showing its bleached condition as compared with the left. I am informed that this gentleman died soon after the lithograph was published, in 1848. We may therefore conclude that he was at the time affected with obscure organic disease,—possibly that form of disease afterwards described by Addison. Addison's disease, as is well known, is characterised by anaemia and by an abnormal accumulation of pigment in parts of the

skin. The preparation, No. 540, has considerable pathological interest in connection with this disease. It is "a lock of hair of a deep black colour, taken from a patient suffering under Addison's disease, the original colour of the hair having been brown." It was presented to me by Dr. Headlam Greenhow, whose researches into this disease are very generally known.

If now we make the attempt to summarise the phenomena of chromatopathia, we are led to deduce the following general conclusions :—

1. That all chromatopathic affections are examples of excess or absence of pigment, and, where chromatosis is disturbed, these two states may be present together in the same individual.

2. Excess of pigment implies an increased activity of chromatosis, and may be associated with a healthy condition of the organisation, or it may be a symptom of a morbid condition.

3. Absence of pigment implies a debilitated state of the skin, sometimes atrophy of the rete mucosum and disorganisation.

4. Excess of pigment in the skin may be due to mechanical or passive congestion of its capillaries.

5. It may be due to excessive stimulation of the skin by chemical agents or inflammation.

6. It may be due to defective and perverted nutrition of the skin.

7. It may be due to exhausted and perverted innervation ; or,

8. It may be due to pathological processes operating in the skin, independent in their nature, or associated with morbid conditions of the organisation.

Let me illustrate briefly the foregoing propositions :—

1. Absence of pigment alone or achroma, is seen in the negro and among the darker races of mankind, without any corresponding change in the

normal colour of the rest of the individual. But in the drawing numbered 493, achroma or leucasmus is associated with melasma; not a mere general increase of duskiness of the skin, but with an accumulation of pigment in considerable quantity in different parts. This evidence of a general disturbance of the function of chromatosis is very curious and interesting.

2. My second proposition that excess of pigment may occur in a healthy state of the body, as well as in a morbid state, is illustrated by the common example of the spilus or pigmentary mole. The pigmentary mole is a mere physiological hypertrophy of the integument of limited extent, sometimes smooth and bald, at other times associated with hypertrophic growth of the hair, in the latter case constituting the nævus pilosus. No. 438 is a wax cast of the side of the neck of a young lad, showing a pigmentary and hairy nævus, the so-called "mouse," situated just below the ridge of the lower jaw; while No. 439 is a remarkable illustration of the union of hypertrophy of the true skin, with excess of pigment and abnormal growth of hair. It is the photograph of a child, showing a pigmentary and hairy nævus that occupied the greater part of the side of the face, covered the ear, and became continuous with the hairy scalp; it being, in fact, an extension of the organisation of the scalp, with the addition of pigment, to the contiguous integument of the face.

Such cases as these represent simple abnormality or aberration of function, and are consistent with a perfect state of health of the individual; they are widely different from No. 493, in which the excessive pigmentation was a symptom of serious organic disease.

3. Absence of chromatosis is an expression equivalent to arrest of function, and must therefore be regarded in the light of a debility or feebleness of

vital power. It is quite possible that that feebleness may be limited to the integument, leaving the rest of the organisation in perfect health, and this in some instances we must conclude to be the case, and the more particularly where the change has an hereditary character. The Albino amongst ourselves may be a strong man, and so also may be the piebald or the Albino negro. But where the change is of an accidental nature as in No. 470, we have sufficient grounds for believing that the alteration is immediately due to defective functional power of the skin. In the instance before us, achroma was associated with extensive tegumentary disease in the shape of spargosis scrotalis or elephantiasis arabum. The white spots of elephantiasis græcorum are also gravely associated with disorganisation of the skin; and so likewise, but locally instead of constitutionally, are the ivory-like and alabaster-like blotches of morphœa and scleriasis.

4. Any cause operating so as to produce a chronic dilatation of the capillaries of the skin, and a consequent stagnation of its blood, is a fruitful source of excessive pigmentation. The close proximity of large veins to the skin has a tendency to operate in this manner, and particularly those causes which give rise to congested and varicose veins. In this way we explain the occurrence of yellow, brown, and black stains on the legs, and their greater frequency in that situation than elsewhere. These stains generally occur in the form of blotches of variable extent on the slender part of the leg between the calf and the ankle, and along the course of the tibia. Sometimes they occupy the margin of one or several follicles, and have the usual characters of lenticulæ or freckles; and sometimes, but more rarely, they have the retiform figure of the superficial venous plexus, as shown in the drawing No. 491. In a similar way we explain the melasmic stains left on the skin by chronic and indolent ulcers.

5. Under the head of excessive stimulation of the skin we may group together the effects of the action of the sun, of fire, and of inflammation. The sun stimulates, not only by its calorific, but likewise by its actinic rays, and by the agency of the latter probably induces changes in the elaboration of the pigment, chemically, as well as by the influence of its calorific power on the vaso-motor apparatus of the skin. Hence, possibly, the various tints of colour of the ephelides or sun-stains, ranging, as we have frequent opportunities of observing, between a golden yellow and a deep brown, almost approaching to black; between the small lentil-shaped freckle limited to the aperture of one or several adjacent follicles, and the uniform swarthiness of the whole surface exposed to the agency of the sun. And the action of the calorific rays of the sun guides us to the explanation of the effects of the heat of fire on the skin, *melasma igneale*, as shown in the curious mottling of the legs of women who employ the chauffrette as a means of procuring warmth; and those other discolourations which result from chronic inflammation and chronic congestion of the skin.

We have sufficient reason to assume that the effect of prolonged or powerful heat on the skin is to induce paresis of the vaso-motor nerves, with dilatation of capillaries and stasis of the circulating fluid, thus facilitating the escape of haematin through the coats of the vessels, its diffusion in the serous fluids of the skin, and its subsequent absorption by the rete mucosum and conversion into pigment. Chronic inflammation producing a similar condition of the skin, gives rise to a like result, as in fact does any cause, temporary or permanent, that has a tendency to induce stagnation of the circulating fluid within the skin. In this way we must explain the melasmic stains which are occasionally seen on the seat of a blister, and those so commonly met

with as sequelæ of certain eruptions of the skin, for example:—lepra vulgaris, lichen planus, ecthyma, and indolent acne, as also those which are consequent on the use of certain medicines, for example, arsenic. As a similar state of the capillary circulation of the skin may be produced by internal as well as by external causes, this circumstance supplies a key to the explanation of freckles occurring on the covered parts of the skin,—the so-called *cold freckles*,—as well as of melasmata and chloasmata found in a similar situation.

Under the title of melasma lenticulare or lenticulæ nigræ, I published a few years back, in the “Journal of Cutaneous Medicine” (Vol. I., page 112), the case of a young lady, æt. 25, whose body was sprinkled over with black freckles. They appeared first round her waist, and thence spread upwards and downwards to the neck and thighs. Their colour was a rich brown black, and they had existed for three years. The spots began as small itchy papulæ at the apertures of the follicles, and when the acute stage was passed the pigment made its appearance and became diffused around the aperture of one or several follicles to the extent of two and three lines.

It is well known that arsenic, when administered for a considerable period, will in certain individuals produce congestion of the conjunctivæ; and when used for a longer period still, occasion a similar congestion of the corpus papillare of the skin. So long as the operation on the skin is one of stimulation only, it results in simple erythema, and is succeeded by an immediate dispersion of the disks of lepra when given for the cure of that disease. But if the remedy be continued beyond this period, as when it is administered for other disease, it is apt to occasion paralysis of the vaso-motor nerves, and induce a permanent dilatation of the capillaries of the skin and chronic stasis of the circulating

blood. As soon as this pathological condition is established, there follow several morbid processes, among which may be ranked hypertrophy of epithelium and excess of pigmentation. In one example of this melasma arsenicale, which I published some years ago, the patient, a lady, had the appearance of a mulatto rather than that of an inhabitant of our climate, and the swarthiness of the skin of the covered parts of the body was greater even than that of the face.

6. My sixth proposition, that excess of pigment may be due to defective and perverted nutrition of the skin, is made evident subjectively in every case of chromatopathia that comes under our consideration, but may be illustrated objectively by ichthyosis sebacea, or sauriosis, and by the group of pigmentary warts. Nos. 425 and 426 are models representing sauriosis, the one of the foot, the other of the arm; the scales are of a dark grey colour, approaching to black, and although much of this colour must be attributed to dirt, yet some of it no doubt consists of an excess of pigment due to that defective nutrition of the skin which is the essence of the disease. In like manner, in association with perversion of growth of the surface-layer of the integument constituting warts of various kinds, excess of pigment is by no means unfrequent, and has sometimes suggested the idea of a relation to melanosis.

7. Neuropathic melasma of the skin may be traced in degree, from the slight deepening of colour of the eyelids as observed in menstruation, through dysmenorrhœa and pregnancy, to local disorder of innervation of the skin as in prurigo, and thence onwards to the more permanent and grave discolourations of the integument produced by nerve-shock, brain disorder, and Addison's disease, thus constituting a very interesting and remarkable series, and placing beyond dispute the dependence

of this form of morbid pigmentation on neurotic disturbance. But as accidental deviations from Nature's laws not unfrequently supply us with our best information with regard to the significance of those laws, let me mention a singular and instructive example of chromatosis. A young woman becoming pregnant for the first time, the ordinary pigmentation of the areolæ mammarum failed to confine itself within its usual boundary, but spread from the areolæ mammarum as from a centre until it covered nearly the whole of the anterior aspect of the trunk of the body. This case was communicated to me by Mr. Jackson, of High Wycombe, in Buckinghamshire, its details being as follows:—

“Martha Weston, æt. 18, came into the Union-house in June, 1843, to be confined, being in the last month of her first pregnancy. My attention was directed to her by the matron, in consequence of an unusual darkness of the skin. Upon examination I found the anterior surface of the body, from the clavicles downwards to about the middle of the thighs, of a negro blackness.

“From the girl's statement I learned that, shortly after she became pregnant, the areolæ around each nipple looked very dark, but no further perceptible change took place until she quickened, when an evident darkness of the whole breast was visible, extending upwards to the throat and downwards to the thighs, gradually assuming a deep black colour. Over the hips it extended laterally, but no part of the posterior surface of the body was affected. Her complexion was naturally rather dark, with black hair and eyes. Her health had always been good, neither had she experienced more than the usual degree of irritation resulting from pregnancy. At her labour I was called in by the midwife of the institution in consequence of a presentation of the hand and umbilicus: turning was resorted to and the girl did well. She left the house a month after

her confinement, at which time there was no alteration in the blackness of the skin; but on my last meeting her, about a year afterwards, she assured me that it had entirely disappeared."

Into the same category with this case will fall those brown, green, and black blotches, melasmic and chloasmic, which occur on various parts of the body in pregnancy, and which are termed *maculæ gravidarum*, and the more striking forms of melasma, proceeding from dysmenorrhœa and hysteria, or originating in nervous shock. In 1863 I published a number of these cases in a paper entitled 'Dyschromatoderma; or, Discolouration of the skin,' which was read at one of the meetings of the British Medical Association. Their leading features were, melasma of the forehead, eyelids, and choroid coat of the eyeballs, with anæmia of the conjunctiva and sclerotica; and certain neurotic symptoms, attributable to derangement of function of the organic nervous system, and often traceable to the uterine plexuses.

In melasma frontis the discolouration is remarkable for its symmetry, assuming the shape of a horseshoe, the convexity above and the branches converging to the root of the nose; with a superciliary spur starting from the extremity of each branch, and curving outwards above the eyebrow. There is likewise, very generally, in association with the frontal stain, a swarthiness of the eyelids and around the nose and mouth; or a smudge of various figure on other parts of the face.

One case of this kind, represented in the drawing numbered 575, assumed the curious modification of being a moist secretion, thereby suggesting the idea of a sebaceous flux, a *steatorrhœa nigricans*. I have described it in our catalogue as occurring in a young lady, aged about 24; the discoloured secretion appeared on the eyelids, and blackened a handkerchief when wiped off. The patient was of a

highly-nervous temperament and subject to severe vomitings, and in the vomited fluids an appreciable quantity of pigmentary matter could always be distinguished. There was, likewise, a tendency to periodicity about the secretion; and its appearance was preceded by a sensation of fulness around the eyes with slight indistinctness of vision, and a little headache. The discolouration was greatest in the evening, and was liable to increase under anxiety and fatigue.

Other examples of this curious affection have been recorded by Dr. MacIntyre and Mr. Teevan;* and in the 'Philosophical Transactions' a similar case is published by Mr. Yonge:—"A girl, sixteen years old, a daughter of Mrs. Elizabeth Worth, of Plymouth, about the end of April, 1709, had a few hot pimples rise on her cheeks, which bleeding and a purge or two cured. She continued very well till about a month afterwards; when her face, so far as is usually covered with a vizard mask, suddenly turned black like that of a negro. This surprising accident much frightened her, especially after some foolish people persuaded her she was bewitched, and never to be cured. By prayers, exorcisms, &c., which they used in order to relieve the fascination, they increased the passion and terror of mind to a great degree, even to distraction, and then desired my assistance. By the arguments which I used, and some composing anti-hysterical remedies, the violence of her fits became much pacified. I directed a lotion for her face, which took off the discolouration; yet it returned frequently, but with no regularity; sometimes twice or thrice in twenty-four hours, sometimes five or six times. It appears insensibly, without pain, sickness, or any symptoms of its approach, except a little warm flushing just before it appears. It easily comes away, and leaves the skin clear and white, but smuts the cloth that

* 'Medico-Chirurgical Transactions,' vol. 28.

wipes it from the face ; it feels unctuous, and seems like grease and soot or blacking mixed. It has no taste at all. She never had the menses ; is thin but healthful ; the blackness appears nowhere but in the prominent part of the face. There are a thousand eye-witnesses to the truth of this uncommon case. The anomalar blackness of the girl's face is now (November, that is, seven months from the beginning of the attack) divided into a few dark cloudy specks, which appear but seldom, and nothing so livid as formerly."

In these cases it would seem as if the pigment were restricted to the secretion of the sebaceous glands ; but I may state from observation that such is not really the fact ; the rete mucosum is also, more or less, deeply pigmented, and especially in the circumference of the affected skin ; the fluid secretion being chiefly concentrated in the middle or focus of action of the congestion.

The neurotic relations of these melasmic stains of the skin is further illustrated by a case which is vouched for by Dr. Sarti, who himself had the opportunity of observing the patient. A peasant, fifty years of age, named Pietro Nanni, of St. Martino al Castagna, having unluckily got into a fray, was fired at, and put in danger of his life. The shock caused a severe illness, and three months afterwards his skin gradually darkened until it became quite black. The change was first perceived on his cheeks, and thence extended over the entire body, being greatest on the front and sides of the breast, the inner sides of his legs and hands.

Melasma is also known to be present not unfrequently amongst the insane ; Dr. Lombroso, in the Italian Journal of Diseases of the Skin, observes that out of 98 insane patients, 68 were affected with chloasma and ephelis ; the proportion of these afflictions being 30 of the former, and 19 of the latter. Dyschroma, resulting from pathological processes

operating in the skin, independent of disturbance of the general health, may be illustrated by reference to *versicolor* or *phytosis versicolor*, the *pityriasis versicolor* of Willan, of which the drawings, 526 and 527, are examples. This disease is essentially an affection of the follicles of the skin, accompanied with a varied amount of congestion of their capillaries, and by a disturbance of nutrition of the epithelium of the follicle and adjoining epidermis. There is no indication of general disorder of the economy; and the local characteristics of the complaint are colour, desquamation, and pruritus. But cases constantly occur in which there is no pruritus, and some in which the peculiar efflorescent desquamation of the disease is absent. The most constant of the signs of the affection is colour, which is yellowish and reddish-brown. In this respect *versicolor* must be regarded as especially dyschromatous; although looking to its desquamating habit, Willan and Bateman have termed it *pityriasis*, which it clearly is not, and Rayer, in reference to its colour, included it in his description of *chloasma*. While in more recent times, under the guidance of the microscope, we have been induced to select as its distinguishing characteristic the fungus-like degeneration of epithelium and epidermis which is peculiar to its morbid structure. From the resemblance of this morbid structure to that of *tinea*, the affection has been termed *tinea versicolor*; but a term such as *phytosis*, which points to the nature of the morbid change, namely, a fungus metamorphosis, is evidently more scientific.

Phytosis will come more properly under our consideration in a future lecture; and I allude to it here only to remark that the pigmentary element of *versicolor* is apt to spread over the face and neck, and give rise to a melasmic condition of the skin, which is undistinguishable from ordinary melasmic swarthiness of complexion, and in which the other

symptoms, desquamation and pruritus are absent ; this is shown in the swart complexion of figure No. 526. Versicolor or phytosis versicolor, therefore, we must regard as a morbid process operating in the skin, and giving rise, as one of its manifestations, to dyschroma ; dyschroma from a local morbid action present in the skin.

Another example of dyschroma of the skin due to a morbid nutritive function, are the yellow nodules and flat plates of xanthoma and xanthelasma. (Nos. 400, 401, 402.) But, in this instance, the surface-layer of the true skin is affected, as well as the *rete mucosum* ; and, as similar formations have been found in deeper structures of the body, and have been traced to an association with disease of the liver, we must regard xanthoma as a connecting link between local forms of dyschroma, and those which are dependent on morbid conditions of the general organisation.

We are led in the next place to take into consideration the melasma of those remarkable dyscrasic diseases, syphilis and elephantiasis. No. 279 is an extreme example of syphilitic melasma, attended with emaciation of the lower limb ; but a general swarthiness of the skin is well known to be a concomitant of constitutional syphilis, and takes a share in producing what is commonly denominated the copper colour of its eruptions.

The melasma of elephantiasis is shown in the whole series of models and drawings preserved in our museum, of which Nos. 322 and 324 are specimens. The macular characteristics of elephantiasis are also seen in the drawing 325, which exhibits blotches of a reddish and brownish colour on the trunk of a young man, twenty-four years of age, born in Jamaica.

Elephantiasis likewise affords examples of achroma in the form of blotches of variable figure, and the blotches have followed a regular course of develop-

ment—first, congestion of the skin; next, melasmic pigmentation; and, subsequently, achroma, beginning in the centre of the black spot, and thence spreading to its circumference.

Achroma is also seen in the early stage of scleriasis, termed *morphœa alba*, and is sometimes combined with melasmic pigmentation of the skin, as in the drawing No. 437. But the achroma of scleriasis is most frequently the consequence of abnormal and excessive proliferation of the fibrous tissue of the skin.

Chromatopathia being an alteration of colour of the skin consequent on aberration of function of the rete mucosum, we shall find no difficulty in distinguishing it from other alterations of colour which are independent of pigment formation. Under the influence of an imperfect state of development of the heart, which permits of the circulation of venous blood through the system, *morbus cœruleus*, the skin, especially of the extremities, the face and the lips, acquires a deep purple and livid colour. But it is quickly evident in this case that the discolouration forms no part of the structure of the skin, but is simply visible through its transparent tissues, and in nowise differs from venous stasis met with in other situations, such as in common chilblain, in a limb where the venous circulation has been arrested by pressure or by ligature, or in a venous nævus.

The skin, likewise, is apt to be stained by extravasation of blood and infiltration of bile into its tissues, in common with other parts of the body; but these are changes in which the rete mucosum either takes no part at all or merely a passive share. This may be seen more strikingly if we refer to a few examples, such as a common bruise from accident, the sanguineous infiltrations of purpura, and the haemic tints of certain forms of erysipelas, erythema, and especially roseola.

But the skin may be discoloured chemically,

stained or dyed, in which case as in the former the pigment organ and pigment function of the skin are free from participation. When salts of silver are exhibited medicinally for a sufficient length of time to be taken up and dissolved by the blood, their solution becomes infiltrated amongst the tissues of the skin and saturates the cellular membrane, acting as a kind of mordent. The agency of light and air subsequently converts the metal into a black oxide, and the skin becomes permanently stained of a bluish grey or slate colour. This form of discolouration is termed melasma tinctum or dyed melasma, and also argyria as resulting from the action of the metal silver.

Another form of artificial dyeing of the skin is the tattoo, which is effected by introducing colour into the substance of the skin by the aid of fine needles. This colouring matter is insoluble and remains mechanically where it has been placed, for ever after.

In both the latter instances therefore, namely, argyria and the tattoo, the colour has no relation to the pigment organ of the skin; but is seated in the substance of the integument, in one case becoming a chemical constituent of the tissue, in the other remaining as a foreign body inserted into the skin. In proceeding to establish the *diagnosis* of melasma, the most obvious test is pressure with the finger; the colour of the rete mucosum will be uninfluenced by such pressure; but colouring matter due to the fluids of the skin will disappear in consequence of the dispersion of those fluids. It has been noted, however, that even a permanent stain is affected in appearance by the depth of colour of the integument due to its contained fluids, and that what may appear a deep melasmic stain in its quiescent state will be reduced to the slightest tinge of brown on pressure. In like manner, Dr. Frederick Churchill remarks that, when he concentrated the ether

spray on a blotch of melasmic or bronzed skin in Addison's disease, the part became pale as though the colour were discharged. And, that having in one experiment devitalized the skin, the pigment ceased to be formed, and the part remained permanently pale.

In argyria there is, for the same reason, a diminution of colour under pressure with the finger, whilst in tattoo, the background being lightened by pressure, the artificial colouring matter is rendered still more apparent.

DIAGNOSIS.—Where the swarthiness of the skin is moderate in degree, and pretty equally diffused, it is sometimes a little difficult to identify its existence; and, in general, this can only be done by comparison with the neighbouring skin. Such commonly happens in *versicolor*, where the change of complexion is frequently passed over unobserved.

In fixing the diagnosis of *melasma* for the application of therapeutics, the great purpose of all pathological investigation, we are led to conclude that pigmentary discolouration of the skin, in many instances, indicates a feebleness of the cutaneous organ, either natural or accidental. Sometimes the debility of tissue is congenital, as in sun-freckles, sometimes it is the consequence of subjection to an overpowering cause, such as venous congestion. Sometimes it results from the deterioration of nerve power, and sometimes it is dependent on a dyscrasic condition of the blood and of the tissues of the skin.

PROGNOSIS.—And these same conditions will equally govern our *prognosis* of the case. A mere deficiency of power we may hope to overcome; a venous congestion may be due to circumstances which are beyond our reach to remove or modify. To restore a depressed or exhausted nerve-power must always be a difficult, and sometimes an impos-

sible, task ; and especially in the instance of organic disease of a part of the nervous system. A dyscrasia, again, may present a curable and an incurable phase, and the disorders dependent on it will follow the character of the type ; a syphilitic melasma will be removed with the cure of the parent disease, but the melasma of elephantiasis must, of necessity, prove irremediable.

VARIETIES OF COLOUR.—It will be obvious, from what I have already said, that the examples of pigmentary discolouration of the skin must be very numerous, whilst their hues, which are derived from the normal colouring element of the blood, may be taken to represent the types of colour met with in the different races of mankind. The most conspicuous of the colours which they present are : yellow, green, brown, black, and the negative of colour, namely, white. Yellow, likewise named xanthochroia and flavedo cutis, is met with in lentigo, ephelis, yellow stains and stigmata of the legs, phytosis versicolor and xanthelasma.

Green is illustrated by chloasma, and, in some complexions, by sun-freckles and cold freckles.

Brown embraces all the transition shades between yellow and black, and is seen in freckles and ephelis.

Black, in all its shades, constitutes melasma, and is presented to us sometimes as a patch of ephelis, sometimes as a blotch of moderate extent consequent on irritation of the nerve plexuses of the abdomen, and particularly of those of the uterus, sometimes as a mottled network following the distribution of a plexus of superficial veins, and sometimes as a broad stain spread over a large surface of the body. Whilst white is an achroma, or absence of colour, and may be very trifling in extent, occupying only the small base from which half-a-dozen eyelashes spring, or, as in the Albino, it may extend over the entire body.

THERAPEUTICS.—If now we take a survey of the pigmentary affections of the skin, with a view to their *therapeutical* consideration, we shall find that they may all be included under the denomination of freckles, sunburn, chloasma, melasma, and achroma.

Freckles come before us at two periods of life, youth and adult life, and in two different situations of the body, the naked and the clothed. On the face freckles are more frequently met with in children than in the adult, and, in the latter case, more commonly in the female than in the male. On the trunk of the body and limbs they are more frequent in the adult than in children. Under these several circumstances the pathological facts of the case are not widely different; a sensitive skin, that calls for corroboration by all the means known to be conducive to that object. Our patients, however, are drawn to us by different motives. Although a deformity, it is well-known to be one which time will rectify, and when the tender skin of youth becomes hardened into that of manhood the inconvenience will cease. But this is not the case with our girls, their training is less adapted to harden the skin, other causes tend to increase an inherent delicacy of cutaneous temperament, and for them we must do our best. Ablution with cold water, the use of soap, open-air exercise, friction, shampooing, are all remedies which tend to invigorate the skin, and them we must prescribe. An old-fashioned remedy, Gowland's lotion, that is, a solution of perchloride of mercury in emulsion of bitter almonds, is a cutaneous stimulant or tonic, and is favourable to the dispersion of the discoloured spots; and another remedy of value is borax, in the several forms of ointment, lotion and soap. Youth being essentially the age of nutritive waste, we must be mindful of the necessity of a good and generous diet; animal or nitrogenous food in some

shape or other three times a day ; and, if needful, a moderate portion of beer. Then we may be led, by indications familiar to us all, to prescribe nitromuriatic acid with bitters, phosphoretted syrup with iron, iron with quinine ; and, above all, the queen of nutritive tonics, arsenical solution.

By such means as these we shall accomplish much, perhaps as much as is possible for human capability to effect, towards establishing a vigorous vital power and vigorous nutrition. The excessive formation of pigment matter by the cells of the rete mucosum, if not a pathological process in itself, is allied with feeble structure and derangement of function, and this we have done our best to amend.

Freckles developed on the clothed parts of the body are contrasted with sun-freckles by their name of cold freckles ; and as I have already said are more common in the adult than in children. As an aberration of normal pigmentation they represent a derangement of function, but their exciting cause is more frequently an internal than an external cause ; a follicular congestion from inward causes. Here, then, as in the case of youth, we require local stimulants to disperse the pigmentary accumulations, bathing, a generous diet, and tonic medicines. The lady of fashion looks on with alarm when she sees the pores of her skin successively enveloped in a discoloured stain, and she not unreasonably dreads that the process may be propagated over the whole surface of her body, and that she will eventually become universally black.

Ephelis or sunburn is the type of discolourations of the skin, of greater extent than the small circumscribed freckle or lenticula, resulting usually from the stimulation of the sun's rays, the combination of light with heat, or light with cold, or artificial heat. Ephelis is therefore ordinarily met with on the uncovered portions of the skin, the face and neck, the hands and arms ; and as it presents two

stages, an acute or erythematous stage, and a chronic or pigmentary stage, its treatment must be varied accordingly, in the first stage requiring the assistance of evaporating and sedative lotions, and dusting with an absorbent and protective powder; and in the second, the use of stimulants calculated to promote exfoliation of the discoloured epidermis. When the skin has been over-stimulated by heat and light or exposure to the weather, we can frequently prevent a pigmentary discolouration by dusting with some harmless powder, such as fullers' earth, and a similar remedy is applicable to the inflammation caused by the heat of fire, a mustard plaster, or a blister.

Chloasma, commonly denominated liver spot, macula hepatica, from its tint of colour, is the type of pigmented blotch usually met with on the body or limbs; irregular in its figure, and unsymmetrical in its distribution. It is sometimes purely local, and sometimes associated with irritation or disorder of the abdominal and pelvic viscera, as in the maculæ puerperarum, macula dysmenorrhœalis, &c. The absence or presence of such suspected visceral disorder will, of course, influence our treatment, which may be simply local; or local, with the addition of remedies adapted to the removal of the irritability and to the restoration of function, of the invalid organs.

In treating therapeutically the various forms of melasma, we are led primarily to consider the constitution and state of health of our patient, as influencing the abnormal pigmentation. Where the leading cause is a derangement of the nervous system or organic disease, we are called upon to combat a neuropathia, or do our best to arrest an organic disorder. Whereas, in certain other affections, for example, syphilis and elephantiasis, the constitutional treatment will obviously tend in a different direction.

Hebra, whose practical and therapeutical mind is strongly exhibited in his treatment of cutaneous disease, and has set us an example in the science of therapeutics, has endeavoured to group together the remedies for pigmentary affections, into such as increase and such as diminish the pigment of the skin; among the former he places the stronger stimulants, such as croton oil, cantharides, mustard, and sulphuric acid; and amongst the latter, acetic, hydrochloric, and nitric acids, borax, caustic alkalies and carbonates of alkalies, and the perchloride of mercury.

His methods of application are more severe than is consistent with the popular ideas of treatment in this country. Thus, he observes, if the pigmentary surface be painted with tincture of iodine every four hours for three days, the epidermis will be killed, the cuticle will exfoliate, and the rete mucosum will cease to be so deeply coloured as it was before. On the same principle he recommends the use of pledgets of cotton wool, soaked in a strong alkaline solution, and kept in contact with the skin for several nights in succession, or even day and night, the aim of the treatment in each case, being the separation of the epidermis in a more or less complete layer: after which, he concludes that the rete mucosum will be developed, pale and roseate, and divested of its excess of pigment. Another of his remedies, having the same object in view, is an ointment composed of trisnitrate of bismuth and the ammonio-chloride of mercury, two drachms of each, and rubbed down into a pomade with one ounce of lard; this he spreads on lint, and covers the patches with the dressing, keeping it on during the night, and only removing it by day.

The remedy most favoured by myself for the removal of pigmented stains, and one which in general produces very satisfactory results, is the solution of the perchloride of mercury, in emulsion

of bitter almonds, in the proportion of two or three to five grains to the ounce. Where practicable, it should be kept for a considerable time in contact with the skin, and carefully watched, to avoid the setting up of severe inflammation.

Dr. Russell Reynolds has thrown light upon this subject in his observations on the therapeutical effects of electricity. In his lectures on the "Clinical Uses of Electricity" (Second Edition, 1873, page 19), he says:—"Those curious patches of pigment which accompany migraine or other neuralgic affections, which 'come and go,' are often present in pregnancy, and are seen sometimes on the forehead or underneath the lower eyelids, may occasionally be removed in a few minutes by the application of a galvanic current." And our President, Sir James Paget, reminds me, as allied with the same subject, of Lister's experiments* on the dispersion of the granules of pigment in the integument of a frog's foot by the electric current, as likewise the physiological movements of the pigment matter in the chameleon and certain marine polypes.

Our treatment of melasma must necessarily be very much influenced by the seat of the stain; on the trunk of the body or limbs it may give so little inconvenience as rarely to be brought to our attention; but on the hands, and especially on the face, it is frequently a source of much annoyance to our patient, and suggests peremptory demands for relief. On the hands we might carry out the more vigorous plan of treatment recommended by Hebra, but with the face we must deal cautiously, in order to avoid the risk of increasing the deformity; a blotch partially removed would probably be more unsightly than the stain in its original form, and the chance of producing a cicatrix must be carefully avoided.

* 'Philosophical Transactions, 1858,' and 'Lectures on Surgical Pathology,' by Sir James Paget, Bart., Vol. I., p. 33.

If it were possible so to regulate the stimulation of the morbid skin as to establish healthy tone and healthy function, our purpose would be sufficiently attained; and, where the double change of melasma and achroma is present at the same time, we must rely on some such method of treatment. A young lady, æt. 20, is at present under my care for melasmic and achromatous blotches on the back of the hands and at the upper part of one thigh. She has recently returned from Bombay, and, like most Indian girls, is somewhat debilitated; she is languid, her appetite is poor, and bowels constipated; moreover, there is a general swelling of one of her arms. A pill of aloes, quinine, iron, and nux vomica, taken every night, very soon improved her state of health; and the steady use of a lotion of perchloride of mercury with hydrochlorate of ammonia, in emulsion of bitter almonds, two grains of the former and thirty of the latter to the ounce, has, after six months of treatment, very nearly equalised the pigmentation of the skin over the whole of the affected surface.

In simple achroma our best remedy is cantharides, pencilling with the acetum cantharidis, so as to keep up a slight redness of surface, and maintain, if possible, a permanent congestion of the capillaries. An achromatous blotch is rarely perfectly uniform in its amount of vitality. It is least sensitive in the centre, and most so at the circumference, where the abrupt boundary of pigment is generally greater than on the actually healthy surface. Hence the pencilling should be lighter at the circumference than in the centre, and the treatment should be conducted with care. I have recorded a case in which the pigment was not only restored to the colourless surface, but was produced in considerable excess, and afterwards required means for its repression.

DISEASES OF THE EPIDERMIS.—The function of pigmentation of the skin is resident in the rete mucosum, in the formative stratum of the epidermis, and is consequently a function of the epidermis itself; we are, therefore, enabled to pass by an easy transition from aberration of a function of the epidermis to a modification of its structure, and thence to a morbid alteration of a part of its structure, the nails, constituting onychopathia. The epidermis is thus made to offer three separate forms of disease to our observation, chromatopathia, or disease of colour; proper disease of the horny epidermis; and disease of the nails, or onychopathia.

Under the influence of defective nutrition of the skin, whether idiopathic or the consequence of inflammation, the cuticle is known to lose its pliancy and elasticity, to become dry and brittle, and to break away from the surface beneath, sometimes as a pulverulent sordes, and sometimes as an exfoliation or desquamation of fragments of variable thickness and dimensions. This kind of exuviation of the cuticle we have already seen in xeroderma and ichthyosis, in the peculiar scales of lepra, in psoriasis, pityriasis, and dermatitis, acute and chronic, proceeding from whatever cause.

We shall scarcely comprehend the whole of the field which we have now to examine without calling to mind that the epidermis, whilst it constitutes the surface of the integument, dips into all its hollows and forms a sheath to all its follicles; so that we have now to consider an alteration of structure of the epidermis, which is intrafollicular as well as interfollicular, and which, from the extent of its presence within the follicles, suggests the inquiry whether it would not be better to treat it as a follicular affection rather than one of the general surface. There is no doubt that we cannot pass over it when we come to the study of diseases of the follicles themselves, but we are likewise bound to

consider it, in some degree, here. The follicle, like the entire skin, is a compound organ, and it is the pathology of the epithelial element of that organ that we have now under our consideration.

Pathology has proved beyond question that in certain affections of the skin a substance is met with, entering into the composition of the epidermis, which resembles in its structure a vegetable fungus. And the conclusion has been adopted that this substance is really a vegetable fungus, growing in the situation in which it is found; and names have been given to it in unison with that idea, and varying with its appearance in its different localities. In one place it is called epidermophyton, in another trichophyton, and in another achorion. The general characters of this substance, which on neutral grounds we may call "phytiform," or plant-like, are a network of jointed and branched filaments termed mycelium, and granules or sporules, sometimes independent and sometimes attached, like the inflorescence of a fungus plant, to the filaments.

The seat of this phytiform material is:—the substance of the epidermis proper; the substance of the epithelium of the follicles, the shafts of hairs, and the rete mucosum; and the diseases which are known to possess this morbid structure are:—the pityriasis versicolor of Willan, tinea capitis and corporis, favus, and certain forms of folliculitis, especially mentagra and lichen marginatus, or Indian ringworm. As this peculiar substance is the essence of tinea or ringworm, and the latter disease the most important of its examples, it has been proposed to term the whole of these diseases *tinea*; for example:—tinea versicolor, tinea capitis, tinea circinata, tinea favosa, and so forth. But as the word *tinea* applies to a mere symptom of one alone of these affections, it would be more scientific to call them all by the generic term *phytosis*, a term signifying plant-formation, and which alludes to a

metamorphosis of structure common to the whole. The diseases in question, besides possessing a morbid structure in common, all labour under the suspicion, more or less confirmed, of being contagious. Hence it is assumed that the mode of propagation of this phytiform substance is identical with that of ordinary vegetable fungi, namely, by sporules, and that the sporules are the veritable contagia, the material means of conveyance of the vegetative organism from one individual to another. This kind of theory has the further consequence of concentrating the treatment of these diseases on remedies known to possess the property of destroying organic life, in this instance vegetable life, and such remedies are termed by the French *parasiticides*. Such being the supposed method of conveyance of the contagia, it became necessary to offer some explanation why these diseases are not more contagious or more universal than they are, and this question is supposed to be met by the suggestion that a certain state of aberration of health is necessary to render the recipient favourable for the acceptance of the disease.

It is now many years ago, that, on the announcement of the discovery by Gruby, of a vegetable organism in favus, I set myself the task of searching it out. I had under treatment, at the time, an admirable case for my investigation; and I naturally sought for the means by which the sporules were enabled to obtain their entrance into the skin. The morbid matter occupied the substance of the rete mucosum, bounded below by the derma, and above by the horny epidermis, closely packed between these two layers; and I was driven to the conclusion that it was not a parasitic growth as is generally believed, but a morbid growth of the rete mucosum itself, the plant-like appearance of the mass being due to the proliferation of the cell constituents of the rete mucosum, and the deep and

formative layer of the horny epidermis. I could see cells which I had scraped away from the under surface of the rete mucosum, containing several nucleated nuclei. I could see the nucleoli connected one with another in a moniliform series. I could see the nucleoli dividing into two, and each division in its turn becoming an additional pair: while others shot out in the form of filaments which bifurcated at the extremity into buds and branches. I therefore came to the conclusion that the phytiform metamorphosis of the rete mucosum was nothing more than a morbid change inherent to that structure, arising like morbid structures in other tissues of the body, and dependent on morbid conditions of the part and of the individual whole. My further researches into the pathology of phytosis versicolor and tinea led me to similar conclusions, and, above all, the observation of these plant-like organisms within the shaft of hairs.

The practical consequences which I deduce from these observations are:—that ringworm and its congeners are not so contagious as is generally presumed; that they are frequently endemic and epidemic; and that when conveyed from one person to another, the medium is an infection proceeding from the morbid exhalations of the body of the patient. Moreover, that in respect of therapeutic management, I should rely on food and tonic remedies, internal and external; such diseases being essentially a defect of nutrition.

With these preliminary observations, I will now proceed to examine in detail the three most important of the diseases of this series, namely:—tinea, favus, and versicolor.

The word tinea signifies the moth grub, and originates in a comparison between the circular disks of bare surface seen on furs attacked by the moth and the equally circular and bare patches seen on the heads of children suffering under ringworm.

The word ringworm has a nearly similar signification, alluding to the circular and sometimes annular figure of these patches. These terms are undoubtedly primitive, but they convey important instruction in connection with diagnosis; they define the loss of hair which is characteristic of the disease, and has further been distinguished as being as it were sheared off—*tonsuratus* or *tonsurans*, *tinea tonsurans*; and likewise a circumscribed circularity of figure, round, and a little prominent like a scutum or shield, *tinea scutulata*. There is another characteristic of ringworm which is always present, a scurfiness and desquamation in small scales, and this symptom of the disease has gained for it the subjective title of *porrigo*, exuviating like the bulb of the porrum or leek. Hence we find appended to this affection the objective designations of ringworm, *tinea*, and *porrigo*, to which we must now add *phytosis*, and the subjective titles of *tonsurans* and *scutulata*.

For the purposes of physical diagnosis, these terms, in reality, convey a complete word-picture of the disease; for example, a circular patch present on the scalp, slightly prominent and rounded like a shield, coated with a layer of desquamating epidermis and broken hair, and studded with the stumps of hair as though it had been rudely shaved.

We have here an unmistakable delineation of ringworm; let us examine it more closely to ascertain what it is which gives rise to these appearances, and the nature of its variations from the standard here described. Ringworm is essentially an inflammation of the follicles of the hair, in a word, a folliculitis; it attacks a number of follicles at the same time, sometimes a group of very small extent, sometimes a cluster of one or two inches in diameter, sometimes, but rarely, the entire head. Very commonly we find one or two large patches and a

number of small ones, and sometimes a few scattered individual follicles.

The folliculitis of ringworm is usually of a chronic nature, and is marked rather by a disturbance of nutrition than by the ordinary symptoms of inflammation ; the first indication of the disease being very possibly, a circular gap in the hair with a scurfy base, from which the hair may have been combed away imperceptibly to the patient. But occasionally, and especially in sensitive and strumous subjects, there may be suppuration of some of the follicles, sometimes to the extent of forming a ring or a double ring around the circumference of the patch. The next thing that attracts attention is a conical prominence of the morbid follicles; a prominence which has very fairly been compared with the skin of a plucked chicken. The follicle is seen to be choked up with epithelial exuviae ; these epithelial exuviae project beyond the aperture of the follicle and envelop the shaft of a discoloured and possibly broken hair. The aggregate of these papillated follicles produce an unevenness of the surface of the diseased skin, and a slight degree of prominence, which prominence is increased by more or less infiltration of the entire disk ; moreover, the exfoliation of epithelial tissue is not restricted to the follicles, but is communicated to the interfollicular cuticle, so that the entire epidermic surface is rough, scurfy, and papillated.

Our next observation may be directed to the hair, which is more or less dry, rough, withered, limp, and brittle, and has been very aptly compared to tow ; it is broken off at the apertures of many of the follicles, and is procumbent on others, combining with the morbid epidermis to form a thick, dry, and broken covering in a state of desquamation.

When the microscope is brought to bear on this epidermic crust, every part of it, as well as the laminated epithelial exuviae of the follicles, and the substance of the hair itself will be found to be occu-

pied with the phytiform substance already mentioned, consisting of mycelium, ramified shafts, branches, and sporules singly and in mass. Such, in its simplest and uncomplicated form, is ordinary ringworm, but, as its basis is inflammation, it may, from neglect, from bad constitution, or from aggravation by injudicious treatment, be excited to the manifestation of the ordinary symptoms of inflammation—for example, pain, swelling, exudation, and suppuration, and, under these circumstances, may be the cause of swelling of the sub-occipital, post-auricular, and even cervical glands, sometimes attended with suppuration and abscess.

Every form of folliculitis and superficial inflammation of the skin has the double tendency to a stationary and to a migratory habit, and this is very characteristically manifested by ringworm. Ringworm on the head is usually stationary; when it increases in extent it does so slowly and only by communicating the morbid process to the contiguous skin as in common inflammation. But, on the non-hairy skin, it exhibits an active disposition to run on by the periphery and give rise to rings, whilst the central area undergoes a spontaneous process of healing. This peculiarity of growth confirms the applicability of the word ringworm, and is one of the principal characteristics between tinea, or phytosis capitis, and tinea circinata. And the tinea circinata becomes a link of transition to other forms of annulate folliculitis, which we shall afterwards have to examine.

On the table before us we have several illustrations of tinea capitis and tinea circinata.

No. 498 is a model of the back of the head and neck of a child, seven years of age, showing several aggregated blotches of common ringworm, with a few small scattered spots evincing the early appearance of the disease. The narrow red boundary line and papillated border mark the presence of folli-

culitis, while the area of the rings is roughened with scurf and the remnants of broken hair. The undulating border of the large blotches points out their constitution of several circular patches which have become blended in progress of growth; and within the rings on the smooth skin of the neck the area has recovered its normal appearance.

Nos. 499, 500, and 501 are plaster casts of the scalp of a little boy affected with common ringworm. The prominent patches are composed of morbid hair, matted together by epidermic and epithelial substance. The papillated appearance of the surface, resulting from the distension of follicles with epithelial exuviae, and their consequent prominence is well seen, and the meaning of the comparison of the disease with the skin of a plucked fowl is made clear.

No. 150 is a water-colour study of the encrusted stage of ringworm, showing papulae formed by the prominence of the follicles from which stumps of broken hair are seen issuing; also, the small polygonal islets into which the crust of the disease is apt to break up. Nos. 502, 503, and 504 are mounts for microscopical examination of the morbid hair in ringworm.

It may be remarked here that the phytiform degeneration observed in a hair presents certain differences at different depths of its structure. At the surface, and immediately beneath the cuticle of the hair, the granular bodies, or sporules, are found constituting a layer two or three deep; whereas in the fibrous portion of the shaft the phytiform growth has the appearance of jointed and segmented filaments of considerable length.

Nos. 505 and 506 are a water-colour study and a lithograph of phytosis or tinea circinata. The upper patch was seated on the temple of a lad thirteen years of age, the lower on the thigh of a boy of twelve. Both present inner rings indicative

of stages of growth, and the lower patch exhibits a chain of small rings originating in separate centres of development. The constituents of the patches are a narrow papulated border or ring, more or less red, and a tawny, wrinkled area marked with papular rings or scattered papulae.

No. 507 is a plaster cast of the side of the neck of a young married woman, showing an oblong ring of *tinea circinata*. The area is smooth, the activity of the growth being chiefly evinced by the marginal border.

No. 508 is a plaster cast of the thigh of a little boy twelve years of age; the patch of *tinea circinata* is circular in figure, the marginal ring but faintly papulated, and the epidermis of the area finely wrinkled. In the periphery of the area are seen vestiges of several minor rings.

No. 509 is a plaster cast of the shoulder of a little girl five years of age, showing two annular patches of *tinea circinata*. Within the area of the large patch may be seen the outline of an earlier ring, with scalloped border. This little patient was at the same time a sufferer from *phytosis capititis*, the *phytosis* or *tinea tonsurans*.

The close resemblance of the series of illustrations before us, serves to identify the form and general characters of this disease very clearly.

I have now to call attention to the model numbered 512; it represents the back of the hand of a boy, sixteen years of age, his occupation having been that of an assistant in a slaughter-house. The eruption has the usual annulate form of *phytosis circinata*, and, as is not uncommon in this disease, there is a concentric ring marking an earlier period of arrest than that of the outer ring. Before treatment the surface presented a pale red hue, with minute desquamation, gentle elevation, and slight prominence of border, but has been brought into its present red and angry state by the use of tar oint-

ment and other stimulant applications; and to the same cause is to be attributed the papular unevenness of the inflamed skin. A fungiform growth was found in the sheaths of the hair-follicles near the border of the rings, but none in the cuticle of the area. The disease is supposed to have originated from the handling of the skins of calves and sheep infected with mange, and, according to the statement of the patient, is not uncommon in France amongst those employed in the slaughter-houses.

The diseased skins of the affected animals are distinguished by a dull and faded appearance of the hair, its tendency to fall off and break, and a mealy desquamation of the epidermis.

This case was treated with tincture of iodine, and was pronounced well at the end of a month, after a few applications of that remedy.

I now proceed to another form of dermatophytic disease, totally distinct from ringworm, but allied with it in respect of the nature of its pathological element, a fungiform tissue, and of its seat, the hair-follicles of the skin. The phytiform matter of the disease in question is developed in the shape of shallow cups, and when these cups are aggregated together in numbers, they suggest the idea of a honey-comb; hence the word *favus*, by which the affection is known. Favus possesses an additional interest in the fact that it was in its sulphur-yellow crusts that Remak first discovered and described, just forty years ago, the phytiform material which has since been so amply investigated by Schœnlein, Gruby, and a long list of able observers. And, it was the discovery of this plant-like organism in aphtha, as well as in the skin, that suggested to Gruby the term *nosophyta*.

It may be noted at the outset of our inquiry that favus is rare in England, but less rare in Scotland, and far from infrequent in France and America. I have met with it also among the Spanish and

Portuguese, and likewise in residents of the Coast of Africa. In this country, ringworm is among the commonest of the diseases of the growing period of life, and may be said never to be found beyond the age of youth; favus, on the contrary, is very rare, but prolongs its invasion even unto manhood. Let me further add, that whereas favus in England is scarcely ever seen on any other part of the body than the head, in other countries it is common on various parts of the body and limbs.

The disease is essentially a yellow crust, of between two and three lines in diameter, perforated at its centre by one or two hairs, raised into a rim or border at the circumference, and depressed within the area. It has been compared to a dried lupine seed, as in the term *porrigo lupinosa*, *porrigo* being the old generic term for nearly every affection of the scalp. A close examination further demonstrates that the crust is raised into a kind of crater immediately around the hair, and a section at this point would show that it is prolonged inwards in the shape of the spout of a funnel to nearly the fundus of the follicle. The surface of the crust bears evidence of the growth of the yellow substance in concentric circles, increasing in breadth from the wall of the follicle to the periphery, these successive circles varying in tint of colour in accordance with age, being reddish in the centre, and of a brighter yellow at the last-formed circle or rim. The surface of the crust is covered with unbroken cuticle, whilst its base rests on the derma; the rim is but slightly prominent, and the crust is bounded by a narrow inflamed halo, over which the cuticle is in a state of desquamation.

As might be expected, these crusts are to be met with at every stage of growth from mere yellow specks which denote the beginning of the disease to the full normal size of the favus, nearly a quarter of an inch in diameter. When the crusts occur sepa-

rately the form of the disease has been distinguished by the name of favus dispersus, disseminatus and urceolaris; but where a number of crusts are confluent, the affection is named favus confertus and favus scutiformis. In this latter form of the affection the normal figure of the crusts is necessarily deranged; at the circumference we may find cups which are nearly complete; but the whole circumference of the favus has the scalloped outline which might have been predicted from such an assemblage, while the area is more or less uneven, and perforated by numerous hairs. But another change is not far distant. The process of growth becomes exhausted; the crusts dry up into parched brittle shells; the shallow area breaks around the hair; fragments are displaced; and then a shapeless pulv erulent rugged surface is brought into view, which more nearly resembles a coating of mortar than anything else with which it can be compared.

It is to be assumed that the sufferer from favus is not a person of healthy constitution, but probably of scrofulous temperament, and possibly a member of the lower order of society. The restraint and pressure of so dense a mass as that which I have described naturally give rise to pruritus, a degree of inflammation, always present, becomes increased. These symptoms are aggravated by scratching and rubbing; sanguineous suppurative discharges follow; it is said that pediculi are apt to become engendered, and then we have established a state of disease which is almost unbearable and frequently serious. Quantity of the favous material is another circumstance needing our consideration; where the disease is mild in its development the patient may, without much trouble, prevent these inconveniences from arising; but where it is severe as in cases to which I shall presently allude, the difficulties will be seriously increased.

When the crusts of favus are saturated with oil,

and then enveloped in a waterproof covering for twelve hours, we are presented with the curious phenomenon of the whole of the crust peeling off, by gentle manipulation, in one unbroken layer. We have now before us the obverse of the medal; instead of a surface composed of hollows it is now made up of convexities like so many round-headed buttons, adherent by their circumference. The centre of some of these buttons is prolonged like the spout of a funnel, and these nipple-like prolongations are pierced with openings corresponding with the perforating hairs; sometimes the hairs themselves have separated from the fundus of the follicles, and remain with their sheaths, lodged in the crusts.

Or if we turn from the crust to the scalp on which it lay embedded, we shall find the derma more or less red and inflamed, depressed into hollows by the growth of the favous substance, and more or less deprived of hair. A few hairs stand up here and there singly and in pairs where a portion of the follicle still remains, but over the greater extent of the surface the derma has been compressed until the follicle is wholly obliterated, the substance of the skin is absorbed, and the growth of hair is suspended. When the skin heals it will have more or less the character of a cicatrix, and it will remain permanently bald.

You will agree with me in concluding that, although both of them nosophyta, that is to say, diseases marked by a phytiform degeneration of the cell-tissue of the epidermis and its cognate structure the epithelium, tinea and favus are remarkable for their differences of manifestation; that while the phytosis of tinea is principally developed in the horny epidermis, the epithelium, and the hairs, and is superficial in its character, that of favus seizes upon the whole depth of the rete mucosum, and increases so amazingly in bulk as to destroy the derma

and obliterate the hair follicles, eradicating the hairs, but not interfering materially with their structure.

Let us proceed to examine the examples of favus preserved in our collection, and see how far they illustrate the curious affection of which I have here endeavoured to give an account.

No. 513 onwards to 516 are drawings and a plaster cast of the head of a little boy ten years of age, who had suffered under the disease for seven years. The coloured lithograph (513) shows the appearance of the scalp before any treatment was commenced, and No. 514 its appearance four months later; in the first, the favous crusts are seen in the dispersed and aggregated form, and the general features of the anatomy of the disease are exhibited. In No 514 the crusts have been removed, and the havoc caused by the disease is brought into view; the surface is uneven; congested here and there, and very extensively divested of hair.

These appearances are still better seen in the water-colour drawing No. 515, taken at the same period, and showing the thinning of the scalp, the unevenness of surface, the congestion of portions of the skin, the desquamation of cuticle, and the extensive loss and scanty distribution of hair.

No. 516 is one of those simple but valuable objects, a plaster cast, which take the place of facts; we can feel as well as see in a specimen of this kind, we can measure and compare; there is no obscuration of the object from aberration of light or imagination of the artist; and the truth will stand firm for ever, as in the Babylonian tablets of the early history of the world.

The figure of the isolated cups and their degree of elevation, with the prominent crater in the centre of the cup, are well seen in this cast, as also are the cupped character of the large confluent patches and

the atrophic thinning of the denuded portions of the scalp.

No. 517 is an engraving illustrative of the morbid anatomy of favus and tinea, showing the figure and elevation of the cups of favus, with the relation of the favous matter to the hair follicle; the progressive development and growth of the favous matter from the stage of globular cells resembling those of pus, to their ramified and plant-like forms; and the phytiform degeneration of the hair tissue in common ringworm.

Nos. 518 and 519 are portions of the hair and crust of favus mounted for the microscope.

No. 520 is a model of the leg, its fibular aspect, showing the mode of manifestation of favus upon the non-hairy integument. The morbid portion of the skin is indicated by its purplish hue, and presents itself in the form of two circumscribed patches of considerable extent; and the peculiar cup-shaped crusts of the disease are congregated in small clusters near the circumference of the hyperæmic patches. Several of the cups are perforated through the centre by a hair, and a few incipient crusts may be seen scattered on the sound skin and marked by a red base with a yellow summit, the yellow summit being the nascent crust, which is traversed through its centre by a hair.

No. 521 is a model of the thigh of a little girl, seven years of age, showing a single large crust of *favus* measuring half an inch in diameter by nearly two lines in elevation. The case is remarkable for the large size of the crust, and for the absence of anything similar on any other part of the body. The patient was under the care of Guibout, and the treatment adopted for the cure of the disease was, a starch poultice to remove the crust, and subsequently "antiparasitic" remedies, that is, solutions of the perchloride of mercury.

Nos. 522, 523, and 524 are three photographs,

presented to the Dermatological collection by Professor E. H. Gregory, of St. Louis, Missouri. They exhibit a view of the disease very different from that shown by the previous illustrations of the affection as it occurs in England and France, and the comparison is instructive as marking the difference of form of the same disease in different countries and in different states of society. In this photograph there is no trace of favus-cups, but an accumulation amidst the hair of a thick layer of mortar-like substance, rough and shapeless in figure, and occupying the greater part of the scalp.

On the back of the trunk of the body the crusts are circular in figure, and have the appearance of thick dabs of rough mortar adhering to the skin. On the arms several of these circular patches are blended, and give rise to a mass of considerable prominence and extent. There is no trace of isolated crusts, and no indication of the origin of the disease by small separate cups, although such must have been the fact.

On the right forearm the favous masses more nearly resemble rough oyster-shells than anything else; and there is a circular marking on the surface of the crusts that denotes the manner of enlargement of the masses to be one of general centrifugal growth. As we cannot regard anything as accidental in physiology and pathology, it may be worthy of remark that a very striking difference of character between the two forms of dermatophyta already described, namely, tinea and favus, is evinced by the absence of colour in the former and its presence in the latter. The yellow colour of the crusts of favus is often very remarkable, a bright orange or reddish yellow, more conspicuous in the rim of the crust where the favous matter is newly formed than in the centre or in older crusts where it is dry and stale. They have also been described as being of a sulphur yellow colour; sometimes

they are primrose-coloured or cream-coloured, and in very chronic cases the comparison which suits them best is that of dried mortar.

It has already been shown that the seat of the pathological process is somewhat different in the two diseases, the formative stratum of the horny epidermis in one, the rete mucosum or pigment organ in the other. In the absence of a better explanation, I would therefore suggest that the aberration of colour in favus is due to derangement of function of the rete mucosum associated with its morbid alteration of structure, or that the pigment may be derived from the same source as that of pus.

But we have now to direct our attention to a third dermatophytic affection in which aberration of colour is the most conspicuous symptom, and in which the pigmentary tints range between bright yellow and a deep brown approaching to black. I have already had occasion to allude to this disease when discussing the nature of pigmentary affections, and to remark that if it were not for the phytiform degeneration which is an essential of its nature, we might very reasonably have included it with those diseases: I mean the affection which was named by Willan, pityriasis versicolor, and by Rayer, chloasma, but which we now recognise as a phytosis, phytosis versicolor, or more conveniently versicolor.

The coloured lithograph, No. 525, and the water-colour drawings, Nos. 526 and 527, are good illustrations of this affection. The first and second exhibit the front part of the trunk of a man thirty-two years of age; the abnormal pigmentation of the skin is remarkable for its symmetrical distribution. It is uniformly diffused over the neck, the sides of the breast and the front of the abdomen, and assumes the character of small oblong patches in the hypochondriac region, the flanks, and the upper arms. The nipple on one side is completely

encircled by a broad patch of discolouration, and only partially on the other side. The disease had been in existence, and without alteration, for six years.

Versicolor may be defined in three words: colour, scurf, and itching: whilst the microscope has added to these diagnostic characters the fungus-like degeneration of epidermic tissue which we have at present under examination. Its colour caused it to be regarded as a pigmentary affection by Rayer, and its scurfiness as a squamous affection, a branny desquamation or pityriasis, by Willan. Comparing it with its phytiform congeners, tinea and favus, its only points of resemblance are its development in the follicles of the skin and its morbid structure, whilst it differs from them in its habitat, the trunk of the body in lieu of the head, its symmetrical distribution thereon obeying not a local action, but a general neurotic impulse; and in its period of development, namely, not in childhood and youth, but in the adult. To these characteristic signs may likewise be added its duration for a number of years, often without attracting the particular attention of the patient.

It must be mentioned also in connection with this disease, that although distinguished by colour, scurf, itching and phytiform structure, yet one or more of these symptoms may be wholly absent, or one or more may be alone present. One patient will apply to us for the removal of the affection on account of its appearance only; another on account of the friable state of the epidermis, which comes off with rubbing, and leaves the skin rough and scaly; while a third, paying no regard to the appearance of the skin, is driven almost frantic by its itching.

Such was the case with the patient whose cutaneous affection is delineated in the drawing No. 527, which is described in the catalogue as the back of a man of adult age, a celebrated prize-fighter, who be-

lieved that the disease had originated in his being hocussed in order to prevent him from conquering his adversary. The affection assumes the islet-like character, and is pricked with small brown puncta of a deeper tint of colour than the superficial patches. In the lower part of the drawing the appearance of one of his nipples is shown deeply pigmented and of a dark brownish-red tint. The disease in this patient was remarkable for intense and annoying pruritus.

The follicular origin of this affection is evinced by its primary development in the shape of puncta corresponding with the apertures of the follicles, and throughout the whole progress of the disease, the puncta are always deeper coloured than the rest of the patch. In the description of the drawing No. 527, I have noted that the pigmented skin is, as it were, pricked with small brown puncta of a deeper tint of colour than the surrounding surface; these puncta being, in fact, the apertures of affected follicles. It will be remembered that in tinea and favus I had occasion to refer to the same fact, which, indeed, is one of importance, as serving to identify this peculiar phytiform degeneration with the follicles rather than with the papillary surface of the skin.

Beginning, therefore, in the epithelium of the follicle and manifesting its existence by an alteration of pigment at the aperture of the follicle, the discolouration extends for some little distance around, so that when a cluster of follicles, possibly under the guidance of one small nervous twig, are attacked at the same time the intermediate skin soon becomes involved, and a small patch is formed, such as is characteristic of this affection. In each of these patches, however, the follicle may always be distinguished by its deeper tint of colour, whilst the interfollicular portion of the skin supplies the scurfiness and desquamation. In a few instances the margin of the patch is slightly more elevated than the area,

but I have never seen anything which could suggest a circinate mode of growth such as is met with in *tinea circinata*.

When discussing *versicolor* in a former lecture as to its relations with *chromatopathia*, I remarked that in many of these cases there exists a remarkable state of duskiness or swarthiness of the face and neck, without any participation in those regions of the scurfy or pruritic condition of the rest of the skin; indeed, it has often passed unobserved by the patient, although in other cases it has vividly attracted his attention. This observation points to a general disorder of function and of nutrition, which must be due to internal rather than to external causes.

I have not observed any uniform plan in the distribution of the patches of *versicolor*; sometimes they seem to spring from the margin of the axilla as a starting-point, sometimes from the groins, sometimes they are most extensive on the convexities of the trunk, and sometimes in its hollows. Occasionally they are met with on the limbs as well as the trunk of the body, for example, the upper arms, the flexures of the elbow and knee, and likewise on the forearm. In these situations, where the pigment is usually pale, they may be distinguished by stretching the skin, when the alteration of the cuticle is made manifest by its being thrown into minute wrinkles.

I have failed to discover any constitutional irregularity in connection with *versicolor*, and have been led to consider it as a defective nutrition of the skin consequent on feeble power of the peripheral nervous system and of the skin. This would seem to be further indicated by the occurrence of the disease on parts of the skin habitually subjected to a warm and moist atmosphere.

The pathognomonic characteristics of the three dermatophytic diseases at present under consideration,

the tinea, the favus, and the versicolor, are so obvious, that the diagnosis of these affections may be said to be reduced to the utmost simplicity, and no division of opinion can arise under this head of our subject. Not so, however, with regard to the nature of the morbid phytiform structure and proneness to contagion of all affections so constituted. I have taught for many years, and see no reason to alter my opinion, that the phytiform structure is a morbid change in the cells of the epidermis and rete mucosum, a change due to a modification of nutrition, and consisting of a proliferation of the granular and nuclear elements of the formative and growing cells; that it is developed where it is found, that it is independent of any organisms existing exteriorly to the skin, and that it is incapable of transmission by contact or inoculation.

Such, however, is not the opinion of my adversaries; they contend that the morbid element of these diseases is a fungus plant, or rather several fungus plants; one, that first discovered, namely, the fungus of favus being an oidium, named by Schoenlein, achorion, and subsequently designated, in compliment to him, achorion Schoenleinii; the others being torulaceæ, and of simpler structure, and named trichophyton and microsporon, trichophyton being the fungus of tinea, and microsporon or epidermophyton the fungus of versicolor. Their relation to the morbid skin is indicated by their title of vegetable parasites, and the diseases themselves, parasitic diseases. Now, with plants which grow in the skin and draw their nourishment from its succulent parts, there vegetating and there producing sporules or seeds in abundance, the theory of contagion is greatly simplified; the sporules are conveyed from skin to skin, and there meeting an appropriate and favourable soil, there derive their sustenance, there grow, and there propagate the disease.

I may say, in a few words, that after as long an experience of the pathology and diseases of the skin as any man at present living, I am an utter disbeliever in this simple and attractive theory of fungus vegetation and contagion. Let me adduce a few popular illustrations, not by way of argument, but simply as suggestive of reflection.

1. Ringworm, which is the most contagious of all the three affections, is contagious only in a mitigated degree.

2. Ringworm of the scalp never occurs in early infancy, and never beyond the period of childhood and youth.

3. Ringworm, when communicated to adults, never affects the head, but shows itself in the superficial migratory form, which is called *tinea circinata*.

4. Favus, in this country, may be declared to be utterly non-contagious.

The little fellow to whose case I have so frequently alluded (No. 513), was brought up with a brother and sister, and at the time the drawing was made, was one of a school of a hundred and fifty-eight boys. He remained in the school until the disease was fairly developed over the greater part of his head, and was then transferred to the infirmary, where he was accustomed to play with several invalid companions. Now, during the whole course of his association with other children, although he partook of their games without restraint, although he washed in the same basin and used the same towel and comb, the disease was never communicated to others; it never extended beyond himself.

5. Versicolor, although common, and constantly met with among married people, affecting husband or wife, is very rarely indeed met with in both.

I need hardly say that I am now asserting a general rule to which there may possibly be occasional exceptions.

It is worthy of remark, that the part of the skin

primarily and principally attacked by the phytiform metamorphosis, or degeneration, or growth, is the follicle; and the question arises:—May not this peculiar morbid process be a special pathological function of the follicle of the skin? A reference to the microscopic labours of a number of observers would seem to answer this question affirmatively, and to reduce the proposition to the following terms, viz.—chronic folliculitis, by altering the nutrition of its epithelium, has a natural tendency to give rise to a phytiform metamorphosis of its cell-elements, and to develop those forms of organic growth which have been termed a parasitic fungus.

In this view of the case the phytiform constituents have been found somewhat numerously, in situations where they were little expected, but always in association with the follicles of the skin; and it may be predicted that they will continue to be found in the epithelium and likewise in the hair wherever an aberration of nutrition is present, and from whatever cause. There is one situation, however, which must be included with the structure of the hair, as a known nest of the disease, namely, the cells covering the bed of the nail, in which, as well as in the epithelium of the follicles and in the hair, this peculiar structure has been detected.

As another illustration of the presence of a phytiform growth in association with folliculitis, it may be remarked that it is met with in mentagra, and in that disease the fungus plant has been denominated *mentagrophyton*. One of the forms of mentagra had previously obtained the credit of being contagious, so that nothing more was wanted to confirm this proposition than the discovery of the *mentagrophyte*. But if we assume, as I believe to be the fact, that this phytiform metamorphosis is a common accompaniment of folliculitis whatever its particular form, the dependence of contagion on the supposed parasitic plant will cease to be tenable.

It will be remembered that the prominence of a follicle from congestion and infiltration of its walls constitutes the dermatological lesion which is termed lichen. Lichen is very commonly associated with eczema, when it constitutes an eczema lichenosum or eczema papulosum, as we see illustrated in the water-colour drawing, No. 72; likewise in the example of lichen pilaris shown in the model, No. 34. It is also common in those forms of eczema which, attacking the follicles more particularly, spread by the circumference so as to give rise to rings, lichen centrifugus, lichen circinatus. We have here before us several examples of this circinate and marginate eczema; for example, the coloured lithograph, No. 79, and the plaster casts, Nos. 80, 82, 83, and 84.

Now if we compare these preparations with those which we have recently passed in review, namely, the drawings Nos. 505 and 506, and the plaster casts numbered 507, 508, and 509, we shall find no anatomical difference between them; they are all centrifugal rings, bounded by a margin of pimples more or less prominent. As an affection of the follicles, rendered prominent and papular by congestion and infiltration, they are lichens, and the term lichen is equally applicable to the whole. The difference, if indeed it be more than a slight variation, is, that those rings which are associated with *tinea capitis* are known to present the phytiform metamorphosis, and are termed *tinea circinata* in lieu of *lichen circinatus*, but they still remain in anatomical structure, a papula and a lichen.

These observations are strikingly illustrated by the model No. 510, which represents the forearm and part of the upper region of the breast. The disease is evidently a *lichen circinatus* and may be a phytosis or a *tinea circinata* according to its microscopic pathology, or its association with other forms of cutaneous disease. Bazin, under whose

direction the patient was treated, calls it "herpes circinatus," which among our French colleagues is the equivalent of our *tinea circinata*. The word "herpes" is used, not in the English and Willaneean sense of a large vesicle, but in the primitive sense of *creeping*, therefore—a creeping eruption. On the forearm are seen five circular circumscribed patches with a broad, papulated and furfuraceous border, and fading centre. The papulæ at the periphery of the patch are of largest size, and at the height of their morbid activity, they diminish in bulk towards the centre, and there entirely subside. The patches on the arm range in size, between three-quarters of an inch and an inch and a quarter in diameter, while that on the breast measures two inches.

No. 511 is another model of a similar kind representing the front of the neck, chest, and shoulders of an adult female. The patient was under the care of Hillairet, who names the disease "erythema marginatum;" but the pathological characters of the affection so closely resemble those of the circinate forms of phytosis, that its natural place would appear to be in the present group, or if not in this, by the side of the annulate forms of lichen. The right shoulder is occupied by a large patch of eruption bounded by a prominent red margin. The patch has resulted from the confluence of a number of circles; hence the boundary is scalloped and irregular. It extends upwards for a short distance upon the base of the neck, backwards to the scapula, forwards to the sternum, for a short distance downwards on the shoulder; and, between the latter and the front of the chest, there are a number of annuli of various size, depending as it were, from the inferior margin of the patch, like the fringe of an epaulette. At the sternal extremity of this patch are two annuli, one an inch and the other two inches in diameter, with smaller satellites. A large circle, nearly two inches in diameter, with four smaller

rings, is situated immediately to the right of the middle line of the sternum, and there is a twin circle just over the right mamma. Around the latter are upwards of two dozen spots ranging in size from two to six lines, and three or four rings. The eruption, as a whole, forms a very remarkable picture; the areae of the rings are lighter in colour than the margins, and are marked by the outlines of previously existing rings and scattered papulæ; while the smallest patches are solid, and have not yet commenced to subside in the centre, so as to give rise to the annular character.

These cases lead us by a natural gradation to a lichenous eruption developed in the region of the pudendum, a lichen marginatus, suggestively termed by Hebra eczema marginatum, and commonly known as the Indian ringworm or Burmese ringworm, in consequence of its being frequent in India and also in China, and very commonly coming to us from those countries. Now in this disease, there are the papulæ of lichen constituting the boundary of the eruption, evidently congested and infiltrated follicles, and spreading centrifugally until they form a scalloped border of considerable extent, spreading upwards to the sacrum behind and above the pubes in front and laterally upon the thighs. This eruption is remarkable for its obstinate resistance of treatment, and is suspected of being contagious, whilst a show of corroboration has been given to this suspicion by the discovery in its structure of the phytiform metamorphosis of its epithelium.

If, now, we attempt to frame a retrospect of the history of phytosis, we shall find that its presence has been established in six principal diseases, namely: tinea, favus, versicolor, mentagra, lichen circinatus and marginatus, and onychogryphosis. That, with the exception of the last mentioned, all these diseases are affections of the follicles; they are, in fact,

examples of a folliculitis of a subacute and chronic character, and are associated with a modification of nutrition of the organ, as is evinced by the deterioration and destruction of the hair.

DIAGNOSIS.—Their diagnostic characters are as various as their names: *tinea* is known by attacking the scalp of children, and destroying the hair; and when it invades the non-hairy parts of the body where the follicles are small, by assuming the appearance of a centrifugal and papular ring.

Favus is recognised by its yellow cup-shaped crusts, penetrated by the shaft of one or two hairs; its occurrence likewise at the growing period of life, but extending onwards to adult age; its tendency to uproot and destroy the hair by thinning of the scalp and obliteration of its follicles; and the mortar-like appearance of its débris at a later stage of the disease.

Versicolor is known by its yellowish and tawny colour, by its occurrence in patches, varying in extent, some small and islet-like, others large and irregular in figure; its distribution symmetrically on the trunk of the body, and its manifestation only in the adult.

Mentagra is a pustular folliculitis of the face, occurring in the male adult, and associated with pustular folliculitis of the hair follicles of the chin and whiskers, sometimes creeping upwards into the temples.

Lichen circinatus is a ring of papulæ of centrifugal growth, occurring at all ages, and more or less numerously distributed over the surface of the body, the papulæ being congested and infiltrated follicles.

Lichen marginatus is nothing more than a severer form of *lichen circinatus*, occurring in the region of the pubes and perineum, the papulæ being larger and more distinct, and the boundary line more strongly defined.

Onychogryphosis is an hypertrophy of the epidermic layer of the under surface of the nail, its cells remaining crude and incomplete, forming a wedge beneath the horny lamina of the nail, and raising its free edge into an oblique position.

All these affections are conspicuous for their chronic character, their resistance of treatment, and for the absence of all special constitutional symptoms.

CAUSES.—If we inquire into their *cause*, we shall find in them all, evidences of debility, locally in the skin, and possibly, generally in the constitution. Defective nutrition, aberration of nutrition, are both of them terms applicable to these cases, and constitute the only rational basis for treatment. If, however, we accept the parasitic theory, the cause is the accidental contact of the sporules of a fungus plant with the skin and independent of the general health. But as some subjects obstinately resist the contagion, while others take it with consummate ease, the believers in this theory have appended to their original definition the requirement that the sporules should fall upon a soil favourable for their development and growth; in other words, on an unhealthy skin, for in a healthy skin such presumed contagion is utterly impossible.

PROGNOSIS.—What is our *prognosis* of these diseases? They are none of them grave; they are, however, vexatious and annoying, but disposed to die out and get well with time. If left to themselves, *tinea capitis*, *favus*, *versicolor*, *lichen marginatus* and *mentagra*, will last for many years, whereas, the slighter forms, *tinea circinata* and *lichen circinatus* will prove less rebellious. As *tinea* and *favus* are both of them diseases of the younger period of life, they necessarily yield to the progress of age. *Versicolor*, *lichen marginatus* and *mentagra*, however, are diseases of the adult, and afford no such final expectation; their continuance will depend on the state of the constitution of the individual.

We may be tempted to inquire why these diseases should be so perverse and obstinate? The answer to this question, as it appears to me, is two-fold. First, because being diseases of defective nutritive power, nature already pressed to the extreme of her resources for the supply of the hourly demands of life, is not equal to the restoration of that power without artificial help. And, secondly, because the seat of the disease is deep, and, in a measure, beyond the reach of our remedies. In the latter fact would seem to lie the benefit that arises from epilation or avulsion of the hair, which, at the same time, strips the epithelial lining of the follicle from the inflamed surface on which it rests, and sets up a more healthy inflammatory process.

TREATMENT.—We now come to the test of our theories. How are these diseases to be treated? The indications for treatment, according to my view of their pathology, is to excite a more healthy action in the follicles by mild stimulants, and to improve the tone and nutritive power of the skin and of the general system by a nourishing regimen, and by tonic remedies; especially by the judicious use of arsenic. Let us see how this principle of operation will apply to the diseases now under consideration.

In *tinea capitis*, rub into the scalp a mildly stimulating ointment, such as the *unguentum sulphuris iodidi* or the *unguentum hydrargyri oxidii rubri*, each in a diluted form, one part to three of *unguentum petrolei* or benzoated lard, and repeat the friction night and morning, following up the inunction with plentiful brushing with the hair-brush, and strictly avoiding washing the head. In the majority of cases this simple treatment will suffice completely for the cure, as far as local means are concerned. But where the eruption assumes the annular and spreading form, the growing border may be painted every third day with tincture of iodine; and in very rare instances, indeed, where the follicles are

suppurating, a lotion or ointment of acetate of lead may be employed.

The centrifugal superficial patches and rings of *tinea circinata* are to be painted once or twice a week with tincture of iodine, with acetic acid, or with the acetum cantharidis.

In favus the local treatment should consist in separating and peeling off the crusts by saturation with oil, succeeded by a water dressing and impermeable covering; and as soon as this is effected, anointing the inflamed surface with the unguents recommended for *tinea*. In favus, as well as in *tinea*, washing should be avoided, and the head be well brushed and kept clean with the hair-brush.

Versicolor should be treated locally by frictions with some mildly stimulating ointment, than which none is better than *unguentum potassæ sulphuratæ*. This should be well rubbed into the affected skin at night, and washed off in the morning with soap. A few applications made in this manner will completely remove the patches, and the mild stimulation of the skin may possibly be sufficient to secure the patient against their return. There is nothing more easy than the removal of these unsightly and sometimes highly irritating blotches; and they are found to yield to a variety of remedies, for example, all the mercurial ointments—white, red, and yellow—and a solution of the perchloride of mercury in emulsion of almonds.

In *mentagra*, the ointments recommended for *tinea* are also valuable local remedies; and where the suppuration of the follicles is kept up by the hair, or where it has become chronic, the avulsion of the hair greatly contributes to the cure. But *mentagra* is more troublesome and difficult of management than the former affections, and will frequently put our resources to a serious trial.

Lichen circinatus and *lichen marginatus* may be treated locally by similar means, but the result will

be very different; the former will yield without difficulty to tincture of iodine, or to frictions with the iodide of sulphur ointment diluted one half. But lichen marginatus will frequently exhaust the patience both of the surgeon and of the sufferer. The remedies the most suitable for its treatment are strong tincture of iodine, ointments of iodide of sulphur, nitrate of mercury, and ammoniated mercury, a solution of chloride of zinc, of perchloride of mercury, and preparations of tar. These, when diligently rubbed into the prominent ridge which forms the boundary of the eruption, will frequently remove it; but all writers on the subject have agreed that there is nothing more difficult. It is in the treatment of lichen marginatus that Goa powder, the acetum and unguentum ararobæ or chrysarobine, and the preparations of the latter, have obtained a reputation, but in my experience this South American remedy is as little trustworthy as the rest.

The internal or constitutional remedies suitable for the treatment of these complaints are such as are calculated to improve nutrition and nutritive power; and first amongst them is food, whilst afterwards will follow hygiene, cod-liver oil, arsenic, iron, and the ordinary tonics.

If I announce, as a proposition, that a really healthy child cannot have ringworm, I should be declaring no more than is perfectly true. Therefore, where tinea is found to exist, I should set myself the task of improving the strength, and primarily the nutritive strength of the patient. Ringworm is usually most rife at the growing period of life; it is rare in infancy, and ceases altogether after puberty, so that it is at the growing period of existence, when the greatest demands are made on the nutritive power of the individual, that the disease prevails. It is at this period, also, that demands are made on the vital powers for education, and children are removed from the care and indulgence of home to

the less agreeable and more onerous duties of school. There can be no doubt that there may be poorly nourished children at home as well as at school, and hence ringworm may prevail in the family at home as well as in the family at school.

As a prophylactic against ringworm, and also as a remedy for its cure, I should begin by enforcing a generous and nutritious diet ; meat, in some form, three times a day, puddings made of flour and suet and varied in flavour and taste, and a little good beer. The quantity must be regulated by the appetite of the child. I do not contend for excess, but simply require that every meal should be as nearly as possible equally nutritive. Adults deem it necessary to have three nutritive meals in the day, whilst the children of the same family are often put off with two, possibly because they are little, but they are in reality the germs of the future great, and have an abundant employment for their nourishment in building up a healthy structure for the coming man. If they are deprived of the wherewithal, the coming man and all that springs from him in the future will be weak and feeble, and as time wears on will develop those diseases which are known to be the consequence of a feeble constitution. How often do we find the diet of children reduced to the miserable standard of bread and butter and milk and water for breakfast ; for dinner, meat and milk and rice puddings with water ; and in the evening bread and butter and milk and water. No better method could be devised for engendering ringworm, scrofula, consumption, and cancer.

It is quite true that in some instances children will not thrive even on the best selected food ; but in these cases it is perfectly surprising what may be accomplished by a few drops of arsenical solution added to the food. It is with this object, after securing a good and substantial diet as a preliminary to the treatment of ringworm, that I am in the

habit of prescribing my ferro-arsenical mixture in doses representing two minims of Fowler's solution with each meal, three times a day. I have no hesitation in declaring this treatment to be infallible, and suitable to every case that may come under our care. Where ringworm prevails in public institutions or in considerable aggregations of children, it is customary to lay the blame on contagion, whereas it would be more consistent with truth to admit that the surroundings of the invalids are not favourable to the promotion and maintenance of sound general health.

In favus as well as in tinea the indications for treatment point to a generous diet, a wholesome hygiene, and the use of medicinal tonics. Cod-liver oil, which is sometimes of great value in tinea as well as in favus, is probably nothing more than a means of nutrition, and may take its place by the side of diet. And arsenic, exhibited in the manner already mentioned, is a useful and indeed a necessary auxiliary of nutrition.

Versicolor rarely presents any constitutional condition needing attention ; but where there is an obvious derangement of the digestive organs we shall derive advantage from the ordinary remedies suited to relieve those symptoms, with the addition of nitro-hydrochloric acid. In several of these cases I have found a disturbance of the digestive organs, in which the liver seemed to participate, and the observation of these symptoms, together with the pigmentary change which is characteristic of the disease, have awakened in my mind a suspicion that the liver may possibly be implicated in its development.

Admitting that some of these affections are purely local, we acknowledge by such an admission the debility of an organ. And although the general health may have taken no share in procuring that debility, we may nevertheless hope, that, if it be possible to improve the general health, we may

thereby communicate strength to the weakened organ. On this principle, even when no important error of function is obvious, we should have recourse to our tonic, our alterative, and our nutritive remedies in sycosis, lichen circinatus, and lichen marginatus, and also in onychogryphosis.

In lichen marginatus I have prescribed the nitro-hydrochloric acid with gentian; -citrate of iron, and quinine with tincture of orange-peel; and the liquor hydrargyri perchloridi with liquor cinchonæ.

It may be expected that I should say a few words with regard to epilation or the avulsion of the hair in tinea, a treatment practised abroad, but which has happily gained no footing in this country. This practice is founded on the parasitic theory of the disease; the hairs of the affected follicles are plucked out, and the plucked surface mopped with a solution of the perchloride of mercury, which is supposed, not as might be rationally imagined, to stimulate the follicles to a more healthy action, but to destroy the vegetable parasites. No doubt the avulsion is frequently followed by cure, just as the drawing of a tooth may relieve the pain of an inflamed dental alveolus, and just as we find the avulsion of the hairs of the beard in the pustular folliculitis of mentagra beneficial; but, unless we desire to perpetrate unnecessary pain and cruelty, a better result may be obtained by more lenient means.

DISEASES OF THE NAILS.

The third subject which I have to bring before you in the present course of lectures is that of the aberrations of growth and the diseases of the nails, the onychopathic affections. The nails are a part of the epidermis, and their diseases, therefore, are very nearly allied with the diseases of the pigmentary function of the epidermis as well as with the structural changes constituting the dermatophytic diseases.

One of the most obvious of the abnormal changes met with among nails is that of extreme growth in length. In the preparations numbered 529, 530, and 531 of the Dermatological Collection, we have examples of nails taken from the great toe, and ranging in length from between two to three inches. Similar examples are seen in the "General Series" in the preparations numbered 2309, 2310, and especially in Nos. 2318 and 2319. These monster growths lose almost entirely the figure of the ordinary nail; they are no longer flat, smooth, and shell-like as are the original nails, but assume the characters of a horn, more or less cylindrical in figure, more or less curved and twisted, and grooved along the under side, in the situation corresponding with the bed of the nail. Such a state is the consequence of neglect; the nails grow more or less perpendicularly from their matrix, and when torn off, present at their base a conical cavity, in which the hypertrophied matrix is contained. In structure, these horn-like nails are laminated, and have the aspect of being composed of a succession of cones packed one within the other, an appearance which is due to the conical projection of the lunula. Strictly speaking, they are, therefore, not mere growths in length, corresponding with the ordinary growth of the nail, but, in reality, growths in thickness.

Although the specimens before us are of considerable length, and more like horns than nails, they are small as compared to some that have been described by authors, which are said to have reached the dimensions of four and five inches.

Sometimes, instead of manifesting an apparent growth in length, they increase in thickness by the deposition on their under surface of successive lamellæ of epidermic substance. In this way they are apt to constitute a prominent mass of horn substance, corresponding in horizontal dimensions

with that of the original nail; these masses are occasionally shed, sometimes normally, and sometimes as a consequence of pressure or injury, and in such cases they leave a thin lamina upon the bed and matrix of the nail, which subsequently undergoes a similar process of stratified growth. I have met with several persons affected with this form of onychauxis who shed their great toe-nails twice, or oftener, in the year.

In No. 2309, the nail of the great toe was curved outwards in its growth and lies across the second toe.

In No. 2310, the great toe-nail presses against the second toe and has pushed it aside, the nail of the second toe curves over its tip, and the nails of the rest of the toes are more or less abnormal.

In opposition to excessive dimensions we sometimes meet with examples of absence of growth of the nails. In consequence of the undeveloped condition of the papillæ of the matrix and bed of the nail, epidermic matter is not produced in greater quantity than on the adjacent skin, and is, therefore, wanting in the horny properties appertaining to healthy nails. The surface of epidermis takes the figure of the underlying matrix and bed, it is smooth and polished in consequence of the absence of the root papillæ, and it exfoliates when it attains a thickness somewhat greater than that of the epidermis.

The nails are also, not unfrequently, curiously modified in *shape*. This we see illustrated in the broad and expanded nail which accompanies the club-shaped fingers of struma. The nails themselves are thin; they curve over the extremities of the fingers, *curvatura unguis*, and have received the names of hooked nails and *ungues aduncī*; sometimes the nails present a remarkable convexity in the longitudinal direction and have been termed keel-shaped, whilst subjectively this state of the

nail has been denominated *arctura unguis* and *gryphosis*. When nails of this sort grow considerably they have the appearance of talons rather than of nails, like the specimens we have previously examined.

The preparations Nos. 2320 and 2321, are examples of this *arctura unguis*, this keel-like prominence of the nails, corresponding with a similar prominent ridge of the matrix, whilst No. 2322 presents us with a nail which resembles very curiously, the beak of a bird.

I was much struck with the appearance of a shovel-shaped form of nail which I observed in a patient recovering from acute dermatitis (*pityriasis rubra*) after a long illness. The fingers and toes of this patient were greatly contracted in bulk; the newly-formed nail corresponded with this lateral contraction, whilst the old portion of the nail which had occupied a broader bed was singularly expanded, and the nail resembled the household implement denominated a dust shovel.

Instead of presenting their normal convexity of surface, the nails are occasionally concave and thin, sometimes concave longitudinally and sometimes transversely, but without alteration in structure. There is a want of substantial material of the matrix and of the cushion beneath it, a consequent imperfect formative power, and a feebleness of resistance which permits the encroachment of the adjacent soft parts on the territory of the nail.

Thinness of the nails is often accompanied with brittleness and a tendency to crack in a longitudinal direction. This state of the organ has been termed *fissura unguis*, and is a source of great vexation and discomfort to the sufferer. There may be five or six of these longitudinal cracks, the surface as well as the end of the nail becoming splintered and ragged. The splintered edges catch in the dress, they are apt to be torn, and the bed of the nail is

wounded and bleeds, and is continually kept in a painful and tender state. There may be no disease of the nail, beyond that of defective nutritive power.

Of a somewhat similar nature and depending on absence of nutritive power, is that longitudinal imperfection of the solidity of the organ which has received the name of fibrous nail. In this case there is no deficiency of quantity as to material, but an absence of cohesion of its longitudinal strands. The nail does not break through as in the instance of the fissured nail; there is consequently no pain or bleeding, or tearing of the derma, and the annoyance of the complaint is limited to the inconveniences of roughness, adhesiveness, and deformity of appearance.

We may enumerate likewise as belonging especially to the structural formation of the organ, certain abnormalities which appear in the nail under the form of small opaque white spots; they are more common in children than in adults, and have been termed by the Latins *mendacia*, probably significative of "faults," in the sense in which we use the latter term in geology. They are called "selene," from their whiteness; and "flores unguium," as implying an efflorescence; and probably represent the rude knocks which the matrix of the root of the nail receives in the gambols of youth; such faults are occasionally seen in the teeth as well as in the nails.

The normal transparency of the nail renders these spots the more conspicuous, and enables us to recognise morbid processes in operation beneath it. Thus a bruise, which is accompanied with extravasation of blood, is sometimes made manifest beneath the nail by a purple spot, constituting *ecchymoma unguis*. Pus may be seen under the nail in some cases of whitlow. The maculae of a syphilitic eruption are occasionally visible under the nail;

and especially so are the brown spots indicative of lepra vulgaris.

An interesting observation with reference to the growth of the nail in association with illness was made some years since by Dr. Beau, and published by him in the eleventh volume of the "Archives de Médecine." Dr. Beau observed that an attack of illness was usually accompanied with a disturbance and suspension of nail-formation. That this suspension of nutrition was visible on the surface of the nail in the form of a groove; and that if the rate of growth of the nail be taken, the period of the occurrence of the illness could be ascertained, and, taking the breadth of the groove, likewise its duration. This is an observation which is very easily made, and it might serve us very materially on many occasions in the practice of our profession. We feel the pulse of our patient, we look at his tongue, both indispensable items of inquiry; and if we desire to know the previous state of his health, we should further examine his nails. A smooth unbroken uniformity of surface will indicate a steady and unchanging state of health; a grooved and uneven surface will point out a proneness to indisposition and illness, which may greatly influence our present treatment.

Let me illustrate these observations by reference to the preparation No. 528, which is a plaster cast of a thumb showing defective nutrition of the nail. The defective nutrition occurred during an illness, and gave rise to a transverse groove in the body of the nail. The date of the illness may be ascertained by calculating the distance of the groove from the posterior wall of the nail, and the duration of the illness by the breadth of the groove.

Dr. Beau selects for his observation the nails of the thumb and great toe, because on them the appearances are more certain than on the rest of the nails. He finds that the length of the thumb-nail

from the point of separation from the skin at its free end to the margin of its root is eight lines, three-fifths of a line of the root being concealed by the overlapping fold of the posterior wall. He further finds that the rate of growth of the thumb-nail is two-fifths of a line per week; consequently, a groove crossing the nail, having a breadth of a line, should represent a period of imperfect growth of the nail, otherwise an illness of two weeks and a-half; whilst the distance of the two borders of the groove from the edge of the root of the nail would indicate when the illness began and when it ended, otherwise the duration of the illness.

It is obvious that as the root of the thumb-nail is buried and out of sight to the extent of three-fifths of a line, the sickness test cannot be put in practice until after two weeks, and then the whole breadth of the groove would not be visible. Nevertheless, it would exist as a test of a foregone illness from two to five months.

The growth of the great toe-nail, according to the same author, is four times slower than that of the thumb-nail; instead of eight, it is nine lines and a-half in length; and, consequently, requires nearly two years for its complete growth. Thus, the groove which is disappearing on the thumb-nail, will now be found just emerging from the fold of the posterior wall of the great toe.

The plaster cast to which I have referred represents an illness which occurred to myself in the month of December, and the cast was made on the first day of May. The illness, an ordinary influenza, occupied two weeks, so that the breadth of the groove should have been a little less than a line, but actually it was a full line. Again, the distance between the peripheral border of the groove, that is, the beginning of the illness and the margin of the root of the nail was seventeen millimetres, which represented seventeen weeks, whereas, according to my

own sensations, I dated my recovery to nineteen weeks and a-half. It must be admitted that in this instance the results of Mr. Beau's theory were not perfectly accurate; but, nevertheless, they approached so nearly to the truth as to deserve our respect, and stimulate us to further research. It is, however, fair to remark that Dr. Beau's observations have been questioned by other investigators. Vogel, for example, mentions that a lost great toe-nail was restored within the limits of a year, and Berthold observed that the nails, like the hair, grow more rapidly in the summer than in the winter, and the nails of the right hand more quickly than those of the left.

It has even been suggested that an observation of this kind might be rendered applicable to medico-legal investigation; it might be made the means of proof of a suspected but past attack of illness, and, in some instances, of establishing the identity of an individual. Moreover, its usefulness in medical examination for life assurance will likewise be obvious.

The observation of the effects of a temporary illness on the nutrition and growth of the nails, leads us to contemplate the consequences of a more enduring illness or debility. Cases of disease of the nails, associated with feebleness of constitution, not unfrequently come before us, and have been recognised by writers under the names of degeneratio unguium, defædatio unguium, scabrities unguium, and tinea unguium, all of which names refer to a rough, uneven, and discoloured state of the nails. The term tinea indicates an appearance of the nail, such as it would present if worm-eaten, scooped out into little hollows; and calling to mind the observations of Virchow, namely, that the cells of the nail were liable, like those of other tissues of the body, to the form of destruction known as fatty degeneration. In morbid states of the nails, Virchow

has described cells in which a number of fine, molecular, yellowish granules were aggregated around the nucleus, so as to constitute a granular mass, while the rest of the cell was transparent and apparently empty. These abnormal cells had a tendency to increase in bulk, and were mingled with normal cells, whilst the aggregated molecules presented in their midst, oil-globules ; and at the same time smaller oil-globules became apparent in the transparent portion of the cell. At a later period these morbid cells would necessarily dry up and shrink into a crumbling disintegrated detritus, leaving only the hollow spaces visible on the surface of the nail, or lead to the destruction of linear portions of the nail, extending the whole length of the organ, as in fibrous nails.

These states of the nails are often independent of any particular illness, and are mere symptoms of a state of debility and defective nutritive power. At other times they are associated with constitutional disease, affecting generally the nutritive system. We have examples of the kind I am now noticing in eczema, lepra vulgaris, struma, and adenosis.

No. 56 is an example of eczema unguium, or eczema onychicum ; that is, of eczema disturbing the nutrition and growth of the nails. Evidence of the presence of eczema may be detected upon the walls of the nail-bed, but the most remarkable manifestation of the disease is one which has received from Virchow the name of onychogryphosis or claw-shaped nail, expressive of the curving up or uplifting of the nail by the accumulation beneath its horny layer of a wedge-shaped mass of crude lamellated cell structure. This cell structure is formed in large quantity by the bed of the nail, and whilst it loosens the under surface of the nail from its adhesion to the derma, forces the superficial horny portion of the nail into an oblique and almost vertical position.

It is in this crude cell substance that the dermat-

phyton is apt to be developed, and in this situation it has sometimes been found; constituting the form of affection which has been denominated onychomycosis.

In Nos. 371 and 398, onychogryphosis is associated with struma. The former case I shall have to refer to again when we come to speak of onychia; but I must not fail to mention in this place that the disease of the nails was hereditary and was associated with the club-shaped fingers of scrofula. The latter model is one of the remarkable series which we have in the museum, illustrating the pathology of lymphadenoma.

I have already remarked that the nails are not unfrequently attacked with lepra vulgaris, constituting lepra unguium. In our examination of a case of lepra vulgaris, we always carry our investigation to the scalp and to the nails, knowing that we shall pretty certainly find the disease in the former locality and very probably so in the latter. The lithograph No. 332, the plaster cast 334, and the model No. 345 are some of the illustrations of this affection which we have in our collection. I have already mentioned that in lepra we frequently discover brown spots on the bed and matrix of the nail, visible through the transparent shell; these sometimes subside without going further, at other times they cause a separation of the nail from the derma and lay the foundation of a future onychogryphosis. But the cases before us illustrate a transverse furrowing of the surface of the nail, like that which I have described in connexion with ordinary illness, and may possibly represent periods of feverish exacerbation. These transverse furrows are well marked in the plaster cast No. 334; whilst in the model No. 345 they sink so deeply as to have the appearance of clefts or fissures.

Occasionally we meet with instances of supernumerary nail, consequent on a tendency to the

bifurcation of a finger or a toe. The nail, in this case, is composed of two wings blended together at the middle line. More rarely the supernumerary nail is due to the development of matrix structure in an unusual situation, as in the preparation No. 444, which I have placed in the group of epidermic horns. This epidermic horn or nail was developed beneath the last phalanx of the great toe; it lay flat against the skin, and grew backwards, "filling the fossa in front of the ball of the great toe." Mr. Houghton, of Dudley, by whom the specimen was presented to me, observed, that "the appearance of the last joint of the toe was very remarkable, for it looked as though it had two nails, on opposite surfaces, growing in opposite directions. The horn had been about two years in formation, the patient being a woman, aged 66. It caused very little inconvenience or pain in walking, but it was very painful at night, and on this account, at her request, I removed it." It measures in length one inch, seven lines being free, and the remaining five lines constituting its root; its breadth is seven lines, or rather more than half an inch, and its thickness a quarter of an inch. It is convex on the external surface, marked with transverse lines indicating successive growth, and in general appearance is undistinguishable from a rough toe-nail, terminated by a rounded obtuse point.

Equally curious with these examples, are the supernumerary and horn-like nails which are produced at the end of stumps, not only on the stumps of fingers and toes, but sometimes also on those of the limbs.

On the stumps of amputated limbs these hyperplastic accumulations of horny epidermis usually take the form of callosities, sometimes of considerable thickness; and they are apt to acquire the hardness, the density, and the transparency of horn. A friend of my own, who has lost the last phalanx

of his little finger, has a short hooked horn at the extremity of the stump, which must be regarded as a substitute for a nail, and resembles some of the specimens here before us.

In these cases there is often a state of hypertrophy of the papillæ cutis, and in fact all the anatomical machinery for the growth of horn or nail; the precise term by which the product should be designated being dependent on its situation and form, and not upon its structure. Thus the preparation No. 444, described as an "epidermic horn developed beneath the last phalanx of the great toe," may be grouped with equal correctness among the horny structures due to hypertrophy of the epidermis, or amongst the nails. For the present I have grouped it with hypertrophies, in immediate succession to epidermic warts and corns.

Its associated congeners in this hypertrophic group are—No. 445, an epithelial or epidermic horn or nail developed on the præputium clitoridis, and epithelial or epidermic horns or nails developed on the glans penis. No. 446 is an epithelial or epidermic horn very closely resembling a finger-nail in appearance, which grew on the glans penis of a young gentleman twenty-four years of age. Both these specimens were removed by operation by Mr. Hancock. No. 447 exhibits examples of horny growths, partly resulting from hypertrophy and partly from the concretion of a coarse-celled epithelial substance, and developed on the integument of the penis and prepuce, and their appearance *in situ* is represented in the water-colour drawing No. 448.

I was unable to follow the progress of this affection in the present instance; but another case in a more advanced stage of development serves to illustrate the result which may possibly be anticipated. In the year 1868, I was consulted by a distinguished military officer, aged forty-four, for

hypertrophy of the epithelium of the glans penis and neighbouring fold of the prepuce. The end of the penis was perfectly flat, it had the appearance of being truncated and spread out, the most shallow groove separated the flattened glans from the broad, round border of the prepuce, and the whole of the flattened surface was coated over with a thick, horny, and, in some places, warty layer of epithelium of extreme density and considerable thickness. The covering of the glans resembled a layer of horn and partially constricted the meatus urinarius; that of the prepuce was like the structure of an old but very prominent wart, and bore evidence of being the product of elongated as well as of enlarged papillæ.

The history of the case was as follows:—The patient had been the subject of herpes præputialis repeated, as is usual with that complaint, periodically; he was also, when these attacks took place tormented with phymosis, and his surgeon to remove the phymosis, performed the operation of circumcision. This happened in 1861, seven years previously to his coming under my care, and from the period of the operation up to the year 1868, irritation of the part had continued to prevail; the papillæ of the glans and inner surface of the stump of the prepuce, had increased in size, and a thickening and condensation of the epithelium was the result. He had made many efforts to obtain a cure and was almost in despair.

I proposed to him to remove the horny layer and obliterate the hypertrophous papillæ by means of a solution of equal parts of potassa fusa and water, and the result for the moment was very successful. The application of the caustic was excessively painful, so that only a portion of the growth could be operated on at a time; and at the end of a few days there was so much inflammation that it became imperative to desist for a week or more before resuming

the use of the remedy. This circumstance, and the necessary pursuit of his military duties, protracted his cure, so that at the end of two years he had made but little progress.

At this time I made the discovery that I could benumb the sensibility of the morbid surface by means of carbolic acid ; and as it was necessary that he should join his regiment, which had been ordered to Ireland from the neighbourhood of London, I entrusted both remedies to his own management, but without any satisfactory result ; the papillæ sprang up again as quickly as they were destroyed, and a capital operation became inevitable. This was performed by one of our most eminent hospital surgeons, and with apparent success. The patient afterwards married and went to reside abroad ; the morbid growth, however, returned, and was again troublesome, but I have since heard that he is doing very well.

A similar case to this, with the advantage to science of not having been interfered with surgically, therefore presenting the horny growth in an undisturbed state, is described and delineated in the current number of the "*Vierteljahresschrift für Dermatologie*," by Dr. Pick, under the title of "*Keratosis*." The swelling of the extremity of the penis is identical with the case which I have just been describing, and the horny growths of the latter would have been equally so had they been left to themselves. Dr. Pick's case may be considered as a magnified representation of the example delineated in the water-colour drawing No. 448.

I must now say a few words on the subject of the soft parts connected with the nails. The narrow border of cuticle which, in its normal state, forms a graceful curve at the base of the nail, and overlaps its root, sometimes adheres so firmly to its surface as to be drawn forward with it in its growth, and become stretched and expanded like a thin mem-

branous film or wing ; this appearance has gained for it the name of *pterygium unguis*. The remedy is obvious, namely, to loosen this cuticular border from time to time, and prevent the adhesion, which is the cause of the deformity.

Originating in a similar cause, the close adherence of this cuticular edge to the surface of the nail ; the cuticle is apt to dry and split up into narrow strips, which curl back from the root of the nail, and stand up from the skin like loose shreds, inviting, as it were, injury, by clinging to everything rough which comes within their reach. In this way they become torn and painful, and give rise to a state of the part which is denominated "agnail," from the Saxon word *ange*, angry. The remedy, as in *pterygium unguis*, lies in the maintenance of a gentle separation between the cuticle and the nail.

On the other hand, in consequence of chronic inflammation followed by thickening, sometimes induced by too free separation of this fold of skin from the nail, the posterior wall becomes everted and swollen ; and then we have a state of the organ which is denominated *ficus unguialis* from some notion of a resemblance to the prominent growth termed *ficus* or *condyloma*. Our remedy in this case is exactly the reverse of the former ; moderate and continued pressure will empty the vessels and infiltrated cells of the swollen tissue and flatten the prominence, thereby restoring the wall of the nail to its normal condition. For this purpose I sometimes have recourse to collodion, and strapping with adhesive plaster ; and at other times where chronic inflammation is present, to tincture of iodine pencilled over the tumefied skin.

Next to these in order of severity come *onychia* and *paronychia* ; *onychia* being an inflammation of the end of the finger or toe involving the bed and matrix of the nail, and *paronychia* being an inflam-

mation of its tegumentary walls. Paronychia is popularly named *whitlow*, and consists in an abscess, which from its seat in the wall of the nail, the resistance to swelling of the part affected, and its acute sensibility, is attended with excessive pain. The accumulation of pus is very insignificant as compared with the amount of suffering which accompanies its formation ; but is often sufficient in quantity to spread beneath the nail and separate it from its bed to some extent.

Onychia is an inflammation of the matrix of the nail as well as of the surrounding soft parts. The presence of the nail and the closeness and tightness of the tissues of the extremity of the fingers and toes, as well as their exalted sensibility, modify very materially the course of onychia. The inflammation is attended with an unusual amount of pain, and the tissues when swollen by congestion and infiltration are apt to assume an extraordinary figure, frequently that of a fungous growth, an appearance which has been compared by the ancients to a loaf of bread or a mass of fermenting dough ; hence the terms, panis, panus, panos, panaris, and panaritium. The name panaris is generally considered a synonym of paronychia, but although paronychia or whitlow may degenerate into a panaris, it cannot be so in reality without the development of a fungous growth.

It will be obvious that when inflammation attacks one wall of the nail, for it rarely attacks both at the same time, its progress is necessarily barred on the side of the nail by the firm tissue which holds the latter in its place. The congestion of vessels, infiltration, and thickening, are, thereby, confined to the wall itself, and it therefore becomes swollen and prominent. In a short time the swollen inflamed tissues are firmly pressed against the edge of the nail, which is thereby converted into a partial ligature ; whilst the resistance of the tissues of the

finger on the other side makes the ligature complete. Here, then, are conditions favouring abnormal growth, distension, and exudation, the fungous mass strangled at its base exudes a sero-purulent discharge, and as the root of the mass, pressed against the sharp edge of the nail, commonly ulcerates, the discharge is more or less sanguineous, and extremely fetid.

The indications for treatment of this painful and disagreeable state are, first, to relax the ligature at the base of the fungus; and, secondly, to prevent as far as possible the increase of the fungus itself. If the obstructive edge of the nail can be got at, the removal of this edge will fulfil the requirements of the first indication; whilst position and astringents may be employed for the second. In some cases avulsion of a part of the nail is resorted to; but in general, this painful operation may be avoided by thinning the nail to the extent of its becoming flexible, and then cutting its edge on a director. As a preliminary to this proceeding I have seen good results follow the use of potassa fusa, in this way destroying the fungus to its base; a process very little painful, but one which at once puts an end to the injurious pressure of the nail and to the congestion of the fungous tissue which is the innocent cause of all the mischief. In cases such as these I cannot too strongly urge my abhorrence of poultices and water dressing, which are usually the cause of the chief magnitude of the evil, and can only be excused on the plea of temporarily affording relief from pain. The dressings should be of an astringent, absorbent, and mildly stimulating character, such as liquor plumbi, powdered bark, lime-water inspissated with oxide of zinc, compound tincture of benjamin and unguentum resinæ.

I have endeavoured to draw a picture of onychia of medium severity. For it may be slight, and although troublesome to the patient, yield satisfactorily

to the remedies employed; or it may be severe and run on to sphacelus and necrosis. In the milder forms it is confined to the wall of the nail, and is kept up and rendered chronic by pressure against the edge of the nail, the so-called *ingrowing nail*. In the severer forms the swelling may be so great as to bury the nail and conceal it from view—a state which has been termed onyxis or onycho-cryptosis—or the matrix of the nail may be involved in the general inflammation.

Onychia is occasionally a complication of eczema; but more frequently it is a consequence of scrofula and syphilis. The model No. 371 affords a good illustration of strumous onychia; the wall of the nail is much swollen, the nail itself is partly separated from the matrix, and a discharge is seen issuing from the groove in which it is implanted. This model has already been before us as an illustration of onychogryphosis; and I may again call attention to the club-shaped figure of the fingers which is so common in scrofula.

No. 281 is a model of the hand, showing syphilitic onychia, or, as we designate it in the catalogue, “dermato-syphilis onychodes.” Several of the matrices unguium are in a state of ulceration, and the nails partially detached. The patient was a man, 24 years of age, and under the care of Lailler, who terms the affection “onyxis syphilitique;” three months previously to his admission into hospital he had contracted chancre, of which the ulceration of the matrices of the nails was a consequence.

No. 282 is another model illustrating syphilitic onychia. The part attacked is the little finger, and it is termed by Dr. Panas, of Paris, under whose care the patient was treated, dactylitis syphilitica.

CAUSE.—The *cause* of onychia is very frequently, local injury—from bruise, puncture, objects forced under the nail, such as a splinter of wood, or, in the

case of the feet, undue pressure of a boot or shoe, or obstruction to the proper growth of the nail. But these causes are rarely sufficient in themselves to produce onychia without the addition of general disorder of health. In the case of eczema the element dermatitis is always ready to assert itself on moderate provocation; whereas in struma and syphilis there is an universally pervading cachexia which requires but small cause to set up a morbid process.

These states of the constitution—the healthy, the strumous, and the syphilitic—which are familiar to us all, must be our guide in determining under which head to place the affection, and consequently under which head it should be treated. The scrofulous patient will have evinced the strumous diathesis from infancy, and at present is young; the syphilitic patient will exhibit other symptoms of that disease present or past; the normal constitution, therefore, will declare itself by negative rather than by positive signs.

PROGNOSIS.—The *prognosis* of onychia is favourable, especially that of the normal and syphilitic kinds. The strumous constitution, however, introduces an element of sluggishness into all its dependent disorders, which gives them the character of indolence and chronicity.

TREATMENT.—With respect to the *treatment* of onychia, I have already spoken of its local management. Constitutionally it will require regulation of the functions of digestion and assimilation, for the non-specific form of the affection; cod-liver oil, iron, phosphorus and iodine for the strumous kind; and iodide of potassium with mild doses of mercury for that which is syphilitic.

Mr. President and Gentlemen, I now conclude the seventh course of these lectures, devoted, on the present occasion, to aberrations of pigment of the skin, aberrations of structure and growth

of the epidermis, and diseases of the nails and their appendages. To complete the circle of cutaneous diseases, there still remain the hair system and the glandular system of the skin, and these I hope to have the honour and the pleasure of expounding to you in a future course.

DISEASES OF THE HAIR.

MR. PRESIDENT AND GENTLEMEN,

My present course of lectures will be directed to the consideration of the diseases of the hair-system of the skin.

The hair makes its first appearance in the human embryo at the end of the third or beginning of the fourth month of foetal life; and the seat of its earliest development is the eyebrow, the eyelid, and the scalp. It begins as a slight prominence or protrusion of the under surface of the rete mucosum. This prominence grows inwards, and assumes the figure of a cylindrical process or column, the direction of its growth being oblique. As the little column moves inwards it pushes the corium before it, and in this way converts the corium into a small pouch or follicle. After a short period the fundus of the follicle, constituted as it is of the pars papillaris of the corium, throws up a minute papilla, which pushes its way into the extremity of the descending column of rete mucosum, and grows into the shape of a pyriform papilla, the papilla pili, constricted at the pedicle and conical at the extremity. We are thus introduced to the two principal factors of the hair-follicle and hair, the former descending from above, and the latter ascending from below; the former being a growth of the rete mucosum, and the latter a growth of the corpus papillare.

If we are curious to know the agency at work in the accomplishment of the growth of these two processes, we find it in the physiological history of

cell-life. The cells of the rete mucosum have the power of independent growth, they increase in numbers by fission, and they also admit of multiplication by the reception of new embryonic cells from the corpus papillare. The newly-formed papilla is alimented in its growth likewise by embryonic cells. So that the material and the mechanism of growth are both ample and handy.

Then at the end of another short interval of time, the hair papilla is furnished with an afferent and an efferent blood-vessel, and a capillary loop of communication between them. In the larger papillæ there are two small arteries which unite at the summit of the papilla, and from this union two efferent vessels or veins descend to the plexus at its base, whilst the blood-vessels communicate freely, and form a vascular plexus within the papilla. In the next place the papilla is found to be enveloped in cells which correspond in every particular with the cells of the rete mucosum ; that is to say, those nearest the papilla are columnar in figure, those next in succession are polyhedral, and those nearest the surface flattened, the entire mass constituting the bulb or root of the hair. This cellular mass surrounds the whole papilla pili from its base to its apex ; the cells are all nucleated, each cell consisting of a nucleus surrounded with protoplasm, and they are so disposed as to occupy their appointed place in the construction of the future hair. Thus the cells corresponding with the apex and shaft of the papilla become elongated and spindle-shaped, they penetrate further into the primitive column formed by the rete mucosum, and they assume the character of the fibrous elements of the hair ; whilst the cells of the superficial part of the bulb become flattened out into the cuticle of the hair, overlapping each other in an imbricated manner from below upwards. Furthermore, the lower part of the hair is closely embraced by a membranous sheath which encloses

the whole hair at its first development. This envelope of the newly-formed hair was first particularly described by Huxley, by whom it is considered as the homologue of the capsule of a newly-developed tooth, and has since been distinguished as Huxley's layer or sheath.

The next part of the procedure of the hair is devoted to its growth. It leaves behind it its nucleated cell-structure in the root; its growing and advancing cells become at first spindle-shaped, and then tough scales and fibres; it shoots forwards; it pierces through the capsule—namely, the sheath of Huxley, and the horny layer of the epidermis, and is finally emancipated from its follicle as a perfect hair.

The hair-follicle, as well as the hair, has by this time attained complete development. Originally nothing more than a cylindrical depression of the corium, it is now converted into a tubule composed of several layers or sheaths. Thus it is, that internally, we find an inner sheath composed of the representative of the epidermis and rete mucosum, and externally an outer sheath consisting of the basement membrane of the pars papillaris, called from its transparency the vitreous membrane; secondly, the pars papillaris itself; and thirdly, the fibrous investment of the follicle, which, when the follicle extends beyond the lower boundary of the corium, supplies it with an enveloping sheath of connective tissue.

The hair-follicle, therefore, may be considered as a cylindrical tube surrounding the lower portion of the shaft of the hair, and expanding at its fundus to enclose and support the root of the hair. Like the rest of the corium, the walls of the follicle have their layer of connective tissue as well as their papillary layer, although the papillæ are necessarily absent; they have a double plexus of blood-vessels corresponding with these layers or sheaths; and

they are also supplied with lymphatic vessels and nerves.

Then, looking at the coarser anatomy of the hair-follicle, we find it to present a funnel-shaped excretory portion or duct, a somewhat constricted neck, a shaft, and a bulb. The ducts of the sebiparous glands open into the apex of the inverted funnel-shaped portion immediately above the constriction of the neck of the follicle. The sebiparous gland occupies in length the middle-third of the follicle, being enveloped in its outer sheath, and below the sebiparous gland is the attachment of the muscle of the hair-follicle, the arrector pili, which is spread out over the convexity of the gland.

The finer hairs, as well as the down-like or lanuginous hairs, extend for a short distance only into the corium; while the stronger and larger hairs, for example, those of the scalp and of the beard, penetrate through and beyond the corium into the subcutaneous areolar and adipose tissue. Many of the hairs of the foetus fall out immediately before and after the birth of the child, and their place is supplied with permanent hairs. In this case the rete mucosum pushes downwards from the fundus of the primary follicle, and continues to grow until it attains the requisite depth; the secondary hair is formed according to the plan already described, and in forcing its way up through the follicle it displaces and carries with it the temporary hair.

Now, if we turn our attention, after considering the physiological history of the hair, to its pathological history, to its aberrations from the normal standard of health, we shall find that those aberrations may be included under four heads, namely, quantity, colour, direction, and structure. In respect of *quantity*, there may be much, or there may be little, or there may be a complete absence of hair. With reference to *colour*, the hair may be devoid of pigment, it may possess pigment in excess,

or the pigment may undergo a chemical change. The *direction* of the hair may be disturbed by some abnormal condition of the follicle, by a profusion of growth, or by a state of entanglement of the mass consequent on neglect. And, in point of *structure*, the hair may be abnormally hard and tough, or brittle and fragile, or it may be changed in appearance in consequence of organic alteration of tissue.

QUANTITY OF HAIR.—In estimating the quantity of the hair, and consequently of the hair substance, we have not only to take into consideration the number of hairs, but likewise their thickness and their length. The number of the hairs of the head has been variously estimated by different authors at from 70,560 to 140,000; whilst my own calculation has placed it between these extremes, at 120,000. Fair hair would seem to be more abundant numerically than chestnut or brown; chestnut and brown than black; and black than red hair. The author who fixes 140,000 for fair or flaxen hair assigns only 88,740 to red hair. In the next place, the hairs of the head range in thickness between one fifteen-hundredth and one two-hundredth of an inch in diameter, whilst the medium average may be taken at one four-hundredth. The length of the hair can only be judged of in the female sex, in consequence of the custom of cutting the hair in the male. In women it is generally regarded as having a range of from twenty inches to a yard, the latter being unusually long; and the weight of a woman's hair has been estimated at from six to ten or twelve ounces.

Many years ago a friend addressed me a laconic note, asking—How many hairs there were on a man's head? The question reminded me of a similar query once put to me by the Rev. Samuel Laing, chaplain of the Middlesex Hospital, namely, How many pores are there on the palmar surface of a man's hand? I had found no difficulty in answer-

ing the latter inquiry, and I perceived that by a similar process I might with the same ease answer the former. I made this plaster-cast of the head of a young man who had recently been shaved, and I ruled a square inch on its surface. It was evident that I had nothing more to do than to count the number of apertures of hair-follicles included within my square, and at the same time ascertain how many square inches were represented by the surface of the scalp. I mention this circumstance to show by how simple an expedient an apparently puzzling problem may be solved, and at the same time to keep attention alive to a valuable aid to physiological and pathological research, namely, casting, either in plaster of Paris or with any material fitted for the purpose. In a former lecture I remarked that I had ascertained the mode of distribution of the linear markings of the cuticle by this means, and it is to it also that we owe the accuracy of the beautiful models by which these lectures have been illustrated. The process sometimes turns out to be a tell-tale in its operation, for as in these admirable models the abnormal forms are coloured by the hand of the artist, a careful inspection of the model will now and then discover that some of the prominences have been overlooked, an error that might occasionally be productive of grave consequences in regard to precision and accuracy of diagnosis.

It was by means of a plaster-cast that my attention was drawn to the fact that sometimes two, and even as many as three hairs may be seen to issue from the duct of a single follicle. You will perceive at once how this circumstance must alter our calculation as to the numerical quantity of the hair, and how it will at the same time explain the differences met with in different persons as respects apparent quantity of hair. In the observation to which I have already referred, of the cast of the scalp of a person with a thin head of hair, I found 744

apertures of hair-follicles within the square inch, and these figures multiplied by 120 superficial square inches, the estimated surface measurement of a man's head, give 89,280, or in round numbers, 90,000 hairs. In a better head of hair, however, we might expect at least half the follicular ducts to give passage to two hairs, which would increase the number of hairs to 133,920, whilst in the case of the emission of two hairs by every follicular duct, there would then be 178,960, or nearly 200,000. In accordance with these premisses, it seems to me that we may fairly put the average numerical quantity, in a good head of hair, at 120,000 hairs.

I may illustrate the exit of several hairs from the same follicular duct by reference to two preparations, numbered 533 and 534, one put up in spirit, the other in a dry state. These I have classed under the head of trichosis or hyper-trichosis, that is hair in excess, and have described in the Dermatological Catalogue as "monster hair-follicles," each follicular duct giving exit to eight or ten fully formed hairs; for which reason they might likewise be denominated polytrichous follicles. The preparations consist of a fold of hypertrophous integument, snipped off with scissors from the upper part of the neck. This fold of skin formed a transverse ridge crested with papulæ, and situated at the lower part of the occipital region of the scalp; it appeared to have been produced by a permanent wrinkling of the skin in that situation. The integument was hyperæmic and the seat of chronic congestion; in this character it gave rise to some pruritus, and became a source of constant although trifling annoyance to the patient, who was a gentleman between forty and fifty years of age. The pruritus induced scratching and picking with the nails, and the irritation caused thereby served to increase the evil. The skin was sometimes excoriated and bled, and became covered with scabs, and at other times

it was the seat of an angry pustulation. These symptoms led him to consult me upon the subject, and I had much difficulty in allaying the irritation.

A more recent case of the same kind presented itself with the aspect of a *lichen pilaris*. A ridge of pimples extended along the occipital margin of the scalp, the centre of a narrow band of about three-quarters of an inch in diameter; the pimples were prominent and hard, perforated by one or more hairs, and developed on a base of red and thickened integument. On one of the pimples I counted five hairs issuing from its summit, while several more were pierced with two and three hairs. The patient was a lieutenant in the navy, of about forty years of age; the eruption and irritation had subsisted for seven or eight years, and were clearly attributable to exposure to weather. The eruption was a source of annoyance to him, partly from the presence of itching, which caused him to scratch, then from incrustation the result of exudation, which led him to pick it, and again from the excoriation and bleeding which succeeded. Moreover, being obliged to keep his hair short in the service to which he belonged, the appearance of the eruption was disagreeable.

These cases appear to me to afford an interesting illustration of the development of hair under the operation of a pathological process; for although follicular ducts may be met with transmitting three or four hairs, these monster follicles giving issue to eight, ten, and twelve, can hardly be admitted into the category of normal growth. Rayer, quoting Ollivier's article on hair in the 'Dictionnaire de Medicine,' speaks of compound hairs of larger size than those around them. These compound hairs, he says, "are often cleft at their free ends, and are sometimes formed of hairs of different colours, which separate when seized between the blades of the forceps to be pulled out. They are produced

by follicles set closely together and communicating with the exterior by a single opening."

The polytrichous follicles, however, which I am now describing, I have not observed in a normal state of the skin, although I have seen not unfrequently the kind alluded to by Rayer. I therefore assume them to be abnormal and pathological. If this be admitted, we have then brought before us for our consideration a state of permanent erythema and congestion of the integument, a consequent hypertrophy of the skin, and a more active growth and development of the follicles; a single follicle under these circumstances of increased nutrition shooting out into branches from the parent follicle, these branches becoming severally the producers of a hair, and the hairs so produced issuing in a bundle from the common duct of the follicle.

Numerical quantity of hair is necessarily influenced by the proximity of the follicles to each other, and, according to Jahn, the follicles are more closely packed on some parts of the head than they are on others. Thus, in a strong young man, aged twenty-eight, who was unusually provided with hair, Jahn found 321 hairs in a given space on the summit of the head; 238 in a similar space at its front part, and 242 at the back. These differences are remarkable, but they are not so great as to interfere with the general calculation with regard to the gross number of the hairs of the head.

In every head of hair there will be discovered differences in the bulk of individual hairs. Thus, of 2,000 hairs, I found the extremes of diameter to be one fifteen-hundredth, and the one hundred and fortieth of an inch in diameter; whilst the average standard may be taken as one four-hundredth. There must necessarily be a considerable difference in the appearance and properties of hair of such various dimensions, and we are sometimes called upon to prescribe for a too fine, at other

times for a too coarse hair. It may assist us to a solution of the difficulty if I state that the finest and feeblest hair was met with in a scrofulous child. Again, young hair is always finer than hair of greater age, and the previous loss of hair and its normal reproduction may greatly influence our judgment when we are called upon to decide as to the proper method of treatment in such cases.

LENGTH of hair is illustrated by the two extremes of slow and restricted growth, and free and active growth. It seems as if it were the nature of some hair to cease to grow after attaining the length of one or several inches. The hair has then fulfilled its law of growth, it will fall out and may be renewed, but further growth in length would seem to be impossible. In fact, even the longest hair possesses a limit beyond which growth can go no further. I was once consulted by an old medical friend in the case of his grand-daughter, a little girl of four or five years of age. She had a hairy growth on the abdomen, which I recommended, in opposition to meddlesome friends, to be left alone. A few years afterwards he told me that my advice had been taken; that the hair had grown for some time, and having accomplished its destined length, had fallen out, and was not reproduced. Such cases, no doubt, are rare, the spontaneous cure, so to speak, of a pilous nævus, but they are, when they occur, very instructive.

I place before you the photograph of a lady, as an example of remarkable growth of hair. Thirty inches may be stated as the full average growth in length of the long hair in women; a yard is considered a fine and unusual growth, but in the present example the longest hairs measured seventy-five inches and a-half, that is to say, three inches and a-half over six feet. The lady stands five feet five inches in height, hence her hair, when she is erect, is nearly a foot longer than herself, and con-

sequently sweeps upon the ground. Writing to me recently (1874) she says:—"I am twenty-eight years of age, my hair is wavy, and it gives me positive pain to pull out a healthy hair by the root." Another lady, whose hair is only a yard and a-half long, that is, fifty-four inches, and whose photograph is likewise before us, remarks, with regard to the former, her friend:—"She is a tall woman, and when standing up her hair envelopes her like a golden veil, trailing many inches on the ground."

The fact incidentally mentioned by this lady, namely, that the pulling out of a hair by the root gives rise to "positive pain," and this in a young woman enjoying strong health, with no abnormal sensibility of constitution, must lead us to infer that in her case the papilla pili was more highly organised and more richly endowed with nerve-power than in ordinary persons, and to the corollary—that a difference in the nutritive vigour of the hair as observed in different persons, may be a consequence of the degree of vital organisation of the skin, and notably of the special-producing organ of the hair, the papilla pili. Such a case as I have now been describing must, however, be looked upon as exceptional, a rare gift of nature, and not as a thing to be procured by artificial means. Doubtless if we can invigorate the skin and its constituent organs, we may secure abundant and well-grown hair, and this in reality is the aim of our treatment for the restoration of the hair when accidentally lost. It may be well to mention further that this lady, in respect to the management of her hair, observes:—"I never use grease, but solely, well-cleaned brushes."

I have here another photograph, which being a photograph may be taken to be correct; the hair is neither so long nor so thick as in the former instance, nevertheless it is remarkable, but I am unable to vouch for its authenticity. The hair was

of a deep black colour, and is said to have grown to its present fulness and richness after a nearly complete baldness, consequent on illness. The restoration of the hair being accomplished, the result was attributed to the use of a certain lotion discovered by the patient herself, she being a young peasant woman of the age of twenty-one; and the opportunity was not neglected to vaunt a specific for the growth of the hair and for the simultaneous growth of the fortunes of its possessor.

Messrs. Hovenden, of Great Marlborough Street, the well-known importers of human hair in London, have afforded me the opportunity of showing some of their samples of long hair, and amongst them one from the head of an English lady which was displayed in the British International Exhibition for 1862. The length of this hair is somewhat more than six feet; it therefore falls a little short of that of my illustration, but is, nevertheless, a phenomenon in respect to the length of the hair.

It has been calculated by Withof that in pursuance of the custom of shaving the beard we remove six inches and a-half of hair from the chin in the course of a year; and he further estimates that a man of eighty years of age will have sacrificed in this way no less than twenty-seven feet of beard. Nor can we wonder at this statement when we hear, on the authority of Eble, that at the Prince's Court at Eidam there is preserved the full-length portrait of a carpenter who had a beard nine feet long, and was obliged, when engaged at his business, to pack it in a bag and carry it on his shoulder. The 'Encyclopaedia Metropolitana,' moreover, informs us that a certain burgomaster in Holland, one Hans Steiningen, had so long a beard that he found it necessary to fold it up when he was moving about, and that upon one occasion, having forgotten to do so, he trod upon it while ascending

a staircase leading to the Council Chamber of Brunn, and was thereby thrown down and killed.

In striking contrast with these specimens of long hair is the lock of pigmy tresses of which I now exhibit a wood engraving, the lock itself being unfortunately lost, although some of the separate curls are preserved. The engraving represents the natural size of the lock, which was less than an inch in length, the tresses being curled up very tightly and scarcely exceeding a line in diameter. If drawn out to its full extent, the hair could hardly have been more than five or six inches long. This lock of hair was taken from the head of a Bosjeman girl, fourteen years of age, and was presented to me by Dr. Tilt. It resembles the minute curls with which a small child's-doll is ornamented rather than the covering of a human head. I have observed a similar character of hair in a young Nubian ; the hair was soft, fine, very curly, gathered into little flocks, and in quantity very insufficient to completely cover the scalp. This imperfect development of hair in the negro may possibly have led to the practice of shaving the head, and wearing the closely-fitting red skull-cap called *tarboosh*. The young man to whom I allude had not had his head shaved or his hair cut for two years and a-half ; in truth, there was really nothing to cut. Curling the hair is a fashion among many nations, and these closely and crisply curled tresses, in general due to flatness of the hair-shaft, would seem to find especial favour amongst people whose hair is naturally short. This is the case with the inhabitants of some of the Polynesian islands. We have here on the table before us some tresses of hair from a male native of the Island of Tanna, one of the New Hebrides. The specimen was presented to the museum in 1831 by a member of the College, Mr. George Bennett. The hair is black, and the curl is apparently formed and maintained in position by

being entwined with some kind of grass or vegetable fibre.

I have said in connection with these curious tresses of the Bosjeman girl, or rather Bosjeman woman, for at fourteen womanhood is complete among the Africans, that the individual curls are twisted up very tightly, the hair being crisp and flattened, as is usually the case with very curly hair. Now the effect of a spiral twist upon a small fasciculus or tress of hair is not only to produce a curl, but to produce a curl with an expanded base; so that the tresses have an isolated arrangement, standing apart from each other, and separated by a distinct interval. If, therefore, these curls were cut off close to the integument, their bases would present the appearance of a number of small patches of hairs all converging from the circumference towards the centre; and the rigidity of the curl has impressed this character so indelibly on the base, that the hairs, as might be expected, would retain that position even when the spiral force was withdrawn. This simple fact has, very singularly, suggested the idea to the minds of certain naturalists that the follicles of the hair in Bosjemans are disposed in a manner different from those of the rest of the human family; that they are, in fact, collected into small groups with an intermediate separation. To believers in an uniform type of creation the impulse is natural to resist such a statement; the appearances noted by them admit of easy explanation in the manner already mentioned; independently of which I have the authority of Professor Flower, who examined anatomically the scalp of a Bushman, for saying, that the hair-follicles are as evenly distributed on the head of the Bosjeman as on that of the European.

There is one region of the human body where hair is never seen—namely, on the palmar and plantar surface of the hands and feet; with that ex-

ception the growth of hair is possible on every part of the integument,* and a general growth over the whole body would reduce man in that respect to the standard of the brute. But supposing the body to become overgrown with hair, we should then find the growth controlled by two physiological laws:—one of length, and one of direction. The canon of length would assert itself on the face, on the eyebrows, in the whiskers and beard, in the pubic region, along the spine, on the chest, on the shoulders, on the breast, and on the podex. Whilst the canon of direction would be manifested in the various whorls and streams or sweeps of the currents of the hair from and towards the middle line, as seen in the eyebrows, the moustachios, the whiskers, at the epigastrium, and at the umbilicus. And we have to bear these laws in mind when observing any case of excessive hairiness or hypertrichosis of the human integument. It is no haphazard distribution of hair, but a distribution on a plan which is common to all hairy animals.

These observations will be well illustrated on the person of the first hairy man who may come under your notice. I need hardly say that some men have considerably more hair on their bodies than others, but in every instance the same law of distribution will be found to prevail; we shall have the hairy breast, the hairy shoulders, and so on. It is also well known that woman is much less hairy on the surface of her body than man; and, moreover, that there are certain characteristic differences between the sexes with respect to its distribution. Nevertheless, instances are occasionally met with in which women are equally, and indeed even more hairy than ordinary men.

* Hair is likewise absent on the upper eyelids, on the last phalanges of the fingers and toes, and on those parts of the mucous membrane which are exposed to the atmosphere and perform the office of skin.

But before I illustrate this point I must observe that the occurrence of hairy men in Europe is sufficiently exceptional to assume the importance of a phenomenon, whilst in certain parts of the world this peculiarity pervades an entire tribe. Such is the case in the islands of Yesso and Kurile, which lie to the north of Japan, and form a chain of connexion between that country and Kamtschatka. These islands are situated between the fortieth and fiftieth degree of north latitude, and are consequently nearer the equator than Great Britain; the climate, however, is unpropitious and the soil barren. In Yesso these people live in the centre of the island; their number is estimated at 50,000, and they are called by the Japanese, Aïnos or Mosinos, that is to say, "hairy people." Mr. Martin Wood, who gave an account of them in a paper read at the Ethnological Society in 1864,* describes them as timid, shrinking, crushed in spirit by subjection to the harsh rule of their conquerors (the Japanese), short in stature, thick-set and clumsy in figure, but possessing considerable physical strength. The men, he says, are uncouth and wild in aspect, "the hair on their head forms an enormous bush, and it is thick and matted. Their beards are very thick and long, and the greater part of their face is covered with hair which is generally dark in colour; but they have prominent foreheads and mild dark eyes, which somewhat relieve the savage aspect of their visage. Their hands and arms, and indeed the greater part of their bodies, are covered with an abnormal profusion of hair. The natural colour of their skin is somewhat paler than that of the Japanese, but it is bronzed by their constant exposure. The women of the Aïnos, as if in default of the extraordinary endowment of their spouses, have a custom of staining their faces with dark blue

* 'Transactions' of the Ethnological Society of London, vol. iv., page 34. Now Series.

for a considerable space around their mouths." The mythology of this people, according to Mr. Martin Wood, abounds in illustrations of hairiness; their gods are hairy; the bear is their chief divinity, and they trace their hairiness to an hereditary source, namely, to the union of the first woman of their race, lovely as Eve herself, with a dog, probably a hairy man as hairy as a dog, a kind of Scandinavian Esau. The suggestion as to the genetic results is in perfect accordance with physiological science.

HAIRINESS.

TRICHOSIS, HIRSUTIES, HYPERTRICHOSIS.*

General hairiness of the body in excess, or *hypertrichosis universalis* is necessarily met with much less frequently in women than in men. But nature, occasionally, chooses to assert her privileges, and seemingly, to controvert her own laws, even in the instance of the softer sex. Of this fact I will now narrate a curious and remarkable example.

In the winter of 1875 an unmarried woman, aged 33, consulted me for loss of hair; the whole of the crown of the head was bald, but the head was covered on the sides and behind, and in general aspect had a remarkably masculine appearance. She said that formerly she possessed a thick crop of hair, but that latterly it had fallen off.

She next directed my attention to her face, where I found the hair of the maxillary region and around the mouth, closely shaven; in fact, if the hair had been allowed to grow she would have had whiskers and beard as strong as is usually met with in men. Her neck was likewise thinly covered with hair, and at my request she then showed me her body, which was hairy over its entire extent. The hair of the pelt, like that of the head, was black, bright,

* Other synonyms of excessive hairiness are, *trichauxis*, $\alpha\nu\xi\eta$ increase; and *dasytes*, from $\delta\alpha\sigma\nu\varsigma$, thick.

and stiff, feeling to the hand like the harshest hair. It was most abundant over her shoulders, around the lower part of the thorax, and upon the podex; and the hair ranged between half-an-inch and two inches in length; on the podex it hung down like a thick fringe. The hair was likewise abundant on her breast and abdomen, and although not uniformly thick and long over the entire surface, the whole of the integument of the limbs, as well as of the trunk, was hairy, and on parts of the back was thick enough to conceal the skin.

She was robust in figure and well clothed with fat, but there was a tendency to laxity of the cellular tissue wherever the integument was prominent, and particularly in the usually firm mass of adipose integument at the upper and inner part of the thighs. This part was wrinkled and shrunken, as if its fat had been absorbed, and only the cellular tissue remained, and hung on each side like a big flabby bag. Moreover, the skin was strongly marked with *lineæ albicantes* or *striæ atrophicæ*, particularly in the flanks and lower part of the abdomen, another evidence of feebleness and abnormal nutrition of the skin; whilst in the integument of the scalp there were several encysted tumours.

Her early history was one of a scrofulous diathesis; all her life through, until the last three years, she had suffered from enlargement and abscess of the cervical glands, and her neck at the present time is seamed with cicatrices. At the age of sixteen she experienced a nervous shock from seeing a dead relative, and was seized with fever, which lasted for some time. She suffers from almost complete amenorrhœa, and from great coldness of the skin and hands. She complains of being always cold; she never perspires, and has but little appetite for food. Of late she has been engaged for many months in the anxious task of nursing a sick parent.

She can fix no date as to the earliest appearance of the hairy growth, but believes it to have been gradual, and contemporaneous in its beginning with puberty.

To a similar category of general hairiness, hirsuties, or hypertrichosis universalis, belongs the case of a young woman, a native of Switzerland, aged 20, mentioned by Dr. Chowne. This young person went to the Charing-cross Hospital in 1852, to obtain a certificate of her sex, with a view to remove the scruples of a clergyman to the celebration of her marriage. She had whiskers, and a beard four inches long and remarkably bushy, and exhibited a general hairiness of the trunk of the body and limbs. With this exception, she presented no other indication of belonging to the sterner sex; but the question was further placed beyond dispute by the circumstance of her being at the time five months advanced in pregnancy. The certificate procured her the means of marriage, and she was afterwards exhibited in London as a hairy prodigy. She stated that she was born with hair upon the face, and that at the age of eight years it was two inches long. She further mentioned the curious circumstance that she had a brother as deficient in beard as she was prolific. She, however, had no moustachio; her upper and lower lip being both as smooth as is customary with her sex. It subsequently appeared that a sister, two years younger than herself, was similarly constituted.

An important difference, however, is apparent between these two cases, namely, that in the latter the growth of hair was congenital and irregular in distribution, while in the former it was acquired and uniform. In the Swiss girl the absence of uniformity is marked by the want of hair in a situation where it commonly occurs in hairy persons, namely, on the upper lip, while its abnormality is shown by its congenital origin, and likewise by the

further evidence of a younger sister being similarly organised, and of a brother who was conspicuous for defective development of hair. The differences between the two cases correspond with those which are daily passing under our notice in the distinction between local and constitutional; the one being due to an independent operation of the part, and the other being consequent on a disturbance of function of the entire organism. My patient was the victim of that form of altered and deranged nutrition of the body, which constitutes scrofula; whereas, in the other example, no such failure of nutrition is evident; but a tendency to abnormal development is strikingly manifest. The latter may still appeal to the resources of our medical art, but the former has passed into the category of a perverted nature, is in fact an example of what was formerly denominated a freak of nature, or “*lusus naturæ*.”

Another example of congenital and hereditary hypertrichosis is familiar to many here present in the noteworthy instance of Shevémaong, the “*homo hirsutus*” of Burmah, and his family. In 1829 this man was seen at Ava, and is described as being completely hairy from head to foot. On the face, ears, and nose, the hair was eight inches long, and on the breast and shoulders four or five inches.

In 1855 Captain Henry Yule gives us the following description of the daughter of this man and her children:

“ To-day,” he writes, “ we had a singular visitor at the Residency. This was Maphoon, the daughter of Shevémaong, the ‘*homo hirsutus*’ described and depicted in Crawfurd’s narrative, where a portrait of her as a young child also appears. Not expecting such a visitor, one started and exclaimed involuntarily as there entered what, at first sight, seemed an absolute realisation in the flesh of the dog-headed Anubis.

“ The whole of Maphoon’s face was more or less covered with hair. On a part of the cheek, and between the nose and mouth, this was confined to a short down, but over all the rest of the face was a thick silky hair of a brown colour, paling about the nose and chin, four or five inches long. At the alæ of the nose, under the eye, and on the cheek-bone this was very fully developed; but it was in and on the ear that it was most extraordinary. Except the extreme upper tip, no part of the ear was visible. All the rest was filled and veiled by a large mass of silky hair, growing apparently out of every part of the external organ, and hanging in a dependent lock to a length of eight or ten inches. The hair over her forehead was brushed so as to blend with the hair of the head, the latter being drest (as usual with her countrywomen) *à la Chinoise*. It was not so thick as to conceal altogether her forehead.

“ The nose densely covered with hair, as no animal’s is that I know of, and with long fine locks curving out and pendent like the wisps of a fine Skye terrier’s coat, had a most strange appearance. The beard was pale in colour and about four inches in length, seemingly very soft and silky.

“ Poor Maphoon’s manners were good and modest, her voice soft and feminine, and her expression mild and not unpleasing after the first instinctive repulsion was overcome. Her appearance rather suggested the idea of a pleasant-looking woman masquerading than that of anything brutal. This discrimination was, however, very difficult to preserve in sketching her likeness, a task which devolved on me to-day, in Mr. Grant’s absence. On an after visit, however, Mr. Grant made a portrait of her, which was generally acknowledged to be most successful.

“ Her neck, bosom, and arms appeared to be covered with a fine pale down, scarcely visible in

some lights. She made a move as if to take off her upper clothing, but reluctantly, and we prevented it.

“Her husband and two boys accompanied her. The elder boy, about four or five years old, had nothing abnormal about him. The youngest, who was fourteen months old, and still at the breast, was evidently taking after his mother. There was little hair on the head; but the child’s ear was full of long silky floss, and he could boast a moustache and beard of pale silky down, that would have cheered the heart of many a cornet. In fact, the appearance of the child agrees almost exactly with what Mr. Crawfurd says of Maphoon herself as an infant.

“This child is thus the third in descent exhibiting this strange peculiarity, and in this third generation, as in the two preceding, this peculiarity has appeared only in one individual.

“Maphoon has the same dental peculiarity, also, that her father had, the absence of the canine teeth and grinders, the back part of the gums presenting merely a hard ridge. Still she chews pawn like her neighbours.”*

A more recent report of this family informs us that Captain Yule was precipitate in his inference that the eldest son had escaped the hairy tendency of his parent, for at a later period he evinced a hirsute development more considerable and remarkable even than his grandfather.

Now these examples lead us far away from the normal constitution of the human body, and into that of abnormality, for, as we learn, the aberration of development in Shevemaong and his family was not confined to the skin and hair alone, but extended to the jaws and teeth. With excess of hair there

* ‘A Narrative of the Mission sent by the Governor-General of India to the Court of Ava in 1855.’ 1858.

occurred deficiency of teeth, and looking to the homology of the teeth and hair this becomes an interesting physiological phenomenon.

A few years back we had the opportunity of seeing another remarkable illustration of hirsuteness, in which, with excessive development of hair, there was likewise an excess in the number of the teeth, namely, a double row. This occurred in the instance of the Spanish opera-dancer, Julia Pastrana, who was the possessor of a beard several inches long.

These interesting relations between the hair and the teeth lead our mind, very naturally, to the contemplation of the analogies which subsist between the skin and the mucous membrane, and, taking a step further, to the consideration of those curious aberrations of structure, chiefly observed in connection with the ovaries, which are remarkable for the presentation of normal tissues abnormally placed, and especially for the development of tegumentary or dermoid tissue; one while representing mucous membrane, and another while skin, but generally confusing the two. The college museum is rich in specimens of this kind, some of which were collected by John Hunter, and others presented by our distinguished colleague, Spencer Wells. Of two of these cases, Mr. Wells observes: "The hair grew from the inner wall of the cysts, and hung into the cavity, where it was matted together with masses of epithelial cells which had undergone fatty degeneration. The hairs had distinct bulbs, and grew from follicles. Many of them were shed; indeed only a small proportion of them retained their connection with the cyst-wall. Several teeth grew from the lining membrane of two of them." The quantity of hair and teeth in these cystic tumours is sometimes very extraordinary; in one, "there was a mass of hair and fat like an enormous chignon. This became quite solid on

cooling. The cyst-walls were like skin, and had bony plates in them." "Schabel describes the case of a girl, aged thirteen, not having menstruated, and in whom there was an ovarian cyst, three times the size of a man's head, containing three pieces of bone, and more than a hundred teeth of all classes, but most incomplete, without proper roots." Sir James Paget "mentions a cyst in which more than three hundred teeth were found."

It has been noticed with regard to the hairy formations found in these dermoid tumours that they partake of the character of the hairs of the body rather than of those of the head. Wedl mentions that they are less deeply implanted than the latter, and that their bulbs are conical and elongated. The hair is more frequently "fair, and of a reddish colour than brown or black," in this respect corresponding with young hair; and in one instance where the hair was brown it had attained the remarkable length of fourteen inches. Spencer Wells observes, with regard to this case, "an oval mass of matted hair was found in one of the cysts. The hair was brown, with small bulbs; it was of unusual length, some measuring as much as fourteen inches. A group of teeth was growing in the walls of this sac; two incisors and a molar, each in its bag, with all the peculiarities of milk-teeth. The molar tooth was especially well-formed. There was neither fat nor degenerated epithelium." The entire tumour weighed twenty-nine pounds.

In one of the preparations on the table several objects of a horny character and closely resembling nails are exhibited. It would be difficult to believe that these objects can be other than nails; and they serve to complete the series of dermal products which have been found in these curious cysts. Epidermic structures exist in abundance, to which must be added nails, in addition to hairs and teeth.

LOCAL HYPERTRICHOSIS.—From general to partial or local hypertrichosis, the transition is simple and natural; hypertrichosis on parts of the body, without affecting the whole, is far from being uncommon. We sometimes see the sternal region in women, otherwise not remarkable for hairiness, covered with a shaggy coat, the skin being in every respect perfectly normal. Rayer, in like manner, relates several examples of long hair in an abnormal situation, but occurring on an otherwise healthy integument; one was that of a young man twenty years of age, mentioned by Dufour, who had hair growing from a circumscribed patch on his sacral region, the hair being as long as that of the head, and the skin fine and white. Campaignac saw a similar tuft of long black hair growing from the shoulder. Rayer himself had his attention called to a patch of long hair situated on one thigh; and to a patient in La Pitié, both of whose shoulders were covered with a growth of black frizzled hair. Perhaps the latter case ought to be transferred to the group of *pilous nævi* as the hairs issued from the summits of brownish elevations of the skin. Again, it is mentioned by Fry that, in the course of his travels in the East, he had met with a fakir on whose breast the hair measured four ells in length.

Hair of considerable length, partially distributed, is also met with in patches of integument varying in extent from a mere point to several inches or feet in diameter. These growths are termed *spili*, *hairy moles*, or *nævi pilosi*, and they are usually associated with an altered organisation of the skin. The hair-follicles may be large or small, and more or less compactly grouped together; the implicated portion of the skin is more or less prominent, generally smooth from the absence of papillæ, sometimes firm and hard, sometimes lax and soft, and more or less deeply coloured with pigment; in a

word, there is a hypertrophic condition of the skin. Being for the most part congenital in their origin, these growths fall into the category of *mothers' marks*, and when they appear at, or soon after, birth, are popularly attributed to fancies of the mother occurring during pregnancy. Thus, in one instance, they are supposed to represent a mouse or mole, and in a second some other hairy animal, and there will generally be found some fable connected with them, such as the mother being frightened by a mouse or a rat, or some other hairy creature, or there may be some history of a nervous shock.

I have here a wax cast of the side of the neck of a young lad, showing a hairy nævus situated just below the body of the jaw. Its number is 438 in the dermatological collection, and it was attributed by its possessor to a longing for sucking-pig by his mother during her pregnancy.

No. 439 is a photograph of a child showing a hairy nævus which occupies the greater part of the side of the face; it covers the right ear, and is continuous with the hairy scalp. Like this kind of nævus in general, the integument is deeply pigmented, and in that respect it differs from the genuine scalp. Numerous small patches of a similar kind were distributed over the body of the child in various parts.

A very striking example of this form of hairy nævus is described by Mr. Thomas Smith as having occurred in St. Bartholomew's Hospital, under the observation of Sir James Paget, in 1865. The subject was a girl twelve years of age:—"The left upper extremity and the greater part of the corresponding side of the trunk and neck were deeply stained with dark-brown pigment, from which grew an abundant crop of brown, harsh, lank hair, varying in length from one to two inches. The skin was rough and harsh; the arm was long, thin, and withered; the scapula was unnaturally prominent.

In fact, the upper limb, shoulder, and backbone bore a very strong resemblance to the corresponding part of a monkey. The mother stated that, when three months pregnant with the child, she was much terrified by a monkey attached to a street organ, which jumped on her back as she was passing by."

Buffon records the case of a little girl, Marie Herig, between three and four years of age, whose body was sprinkled over, from head to foot, with patches of pilous and pigmentary nævi. The hair covering the patches was fawn-coloured, that of her head being brown; on some of the patches it was as long as that of the calf, on others it was short, like that of the fawn, and gave a velvety sensation to the hand. The pilous patches had a fawn-coloured tint, whilst the pigmented patches, which were wanting in hairs, had the appearance of tanned leather. The patches were slightly prominent; but on the back, where they were continuous over nearly the whole surface and covered by the longer kind of hair, the integument had the appearance of a garment of velvety skin, extending from the armpits to the loins, lax and protuberant in the form of excrescences and close-set tubercles, and hanging somewhat in folds; presenting, in fact, a state of molluscum, as well as trichosis and nævus. The eyebrows were strongly marked, and clothed with a commingling of ordinary and fawn-coloured hair.

Rayer mentions several instances of pilous nævi; among them was that of a young man of sixteen, whose breast and back were covered with light-brown hair of considerable length, and growing from a pigmented base; the whole of one arm was similarly invested, and numerous patches were scattered over the legs. Bichât has recorded the case of a man whose face was grown over with hair, the type of the wolf-headed and boar-headed men. And Villermé gives the account of a child whom he saw at Poitiers,

of about seven years of age, whose whole body was spotted over with prominent hairy nævi, which occupied fully one-fifth of its entire integument.

In reviewing the piliferous nævus with a view to distinguish it from excessive growth of hair in normal situations, I may call especial attention to its abnormal position, to the local increase of thickness of the skin, and to the presence of excessive pigmentation. These characters are peculiarly marked in Buffon's case, inasmuch as some portions of the skin were simply thickened and discoloured, without being invested with hair. On the other hand, standing apart from these monstrous examples, there is apt to occur a growth of hair in excess on parts of the frame in which it is normally present only in a trifling degree; such, for instance, is the case where it is found of noticeable or obtrusive length on the upper lip, the cheeks, the chin, the neck, the chest, and the limbs of women; where, in fact, the presence of hair effaces one of the characteristic differences of sex. In a few instances a moustachio on the upper lip of a young woman may be looked upon as a beauty, but in the majority of cases it is regarded by its possessor with a feeling of repugnance.

Leaving for a moment those examples of trichosis which commonly come before us in daily life, I may mention that numerous instances of excessive development of the beard in women have been put on record by authors. Eble narrates that, during the reign of Maria Theresa, a woman who served in the army for many years as a hussar, and rose to the rank of captain, had a strong moustachio. The bearded virgin of Dresden, who lived in 1732, and whose portrait is preserved in the gallery of the kings of Poland, was still more remarkable. Her beard, according to Michaelis,* grew from each side of her chin, was three inches long, and of snowy

* *Acta Acad. Nat. Cur.,* vol. iii., Obs. 127.

whiteness. She cut it at first every month, then every fortnight, afterwards twice in the week. On her upper lip was a moustachio of short black hair; she had a powerful voice, ate enormously, and was bold and courageous. Dr. Gross, of Louisville, mentions a similar instance; an old woman, seventy-eight years of age, enjoying excellent health, and the mother of a numerous family. The sides of her face, chin, and lips, he says, "are all thickly covered with coarse hair, which she is obliged to shave off regularly once a week. Her whole aspect is remarkably masculine, and but for the length of the hair of the head she might easily be mistaken for a male."

DIAGNOSIS.—If we now pass in review the various examples of trichosis, hypertrichosis, or hairiness already enumerated, for the purpose of elucidating their *diagnosis* and establishing a basis for their remedial treatment, where such may be found necessary, we shall find that they admit of division into three groups, namely:—

1. Simple excess in normal situations;
2. Abnormal excess in normal situations; and,
3. Excess in abnormal situations.

To the *first* of these groups belong the long and bountiful hair of certain women of ordinary stature whose hair in length exceeds their height; examples of prodigious length of the beard; and the hairy race of men of the Island of Yesso, the Ainos. Into the *second* group may be gathered, the abnormal hairiness of women, both general and partial; instances of abnormal growth of hair associated with premature development of the procreative organs in children; and the cases already detailed of the bearded Swiss girl and her sister; the "homo hirsutus," Shevemaong and his family; and the Spanish opera-dancer, Julia Pastrana. Whilst the *third* group will embrace the spili or pilous nævi of every kind.

CAUSE.—The proximate cause of trichosis is sufficiently obvious, namely, active nutritive growth. The papillæ pili and hair-sacs are no doubt more highly organised and richer in nutritive material in such cases, than those of ordinary growth, and the differences between the papillæ of weakly and strong hair may be illustrated by the known structural differences between the normal papillæ of the hair of the head and those of the beard. The proposition is simple and natural, resolving itself into a vigorous function, resulting from the operations of a strong, well-developed, and healthy organ. This view of the matter is curiously corroborated by the observation of the lady whose bountiful growth of hair has now become famous, and who remarked that it gave her “positive pain” to pull a healthy hair out by the root; whereas a weakly hair, or, as she termed it, a “dead hair” came out without giving her any sensation. Or, we might put the same fact to experimental proof on ourselves, by plucking a hair from the head and one from the beard or eyebrow, and contrasting the relative degree of sensation.

Now, that one person should possess a particular organ of greater strength than other persons is a matter of daily experience; and, therefore, simple excess of hair in normal situations must be deemed to be explained by the strength and vigour of the producing organ of the hair.

Abnormal excess in normal situations involves further considerations. The local power of production of hair may be the consequence of genuine health of structure, or it may be due to constitutional or even to local causes indicative of a departure from the standard of health. Thus, in the congenital examples represented by the bearded Swiss girl, Shevemaong and his family, and Julia Pastrana, the individuals appear to have been sound in health although the subjects of aberration of physical development; this latter condition was least appa-

rent in the Swiss girl, and was more manifest in her brother and sister than in herself. In Shevemaong and his family, it was evinced by deficiency of teeth; and in Julia Pastrana by a superabundance of teeth. Nevertheless, the skin was apparently healthy in each instance, and the hair-producing power in a high state of efficiency and vigour.

The development of hair on the face is a natural process accompanying puberty; but, in females is so insignificant as to escape observation, whilst in males that growth makes a start into existence which afterwards results in moustachio and beard. Puberty, in this respect, is the point of divergence of the sexes; it is the moment when the reproductive organs begin their active career. The growth and development of the beard becomes the symbol of progress of the male organs of procreation, but the development of the corresponding organs in the female is attained without any such manifestation. We may easily conceive that this important function is so imperative in the female that those secondary sexual processes belonging to the male are overwhelmed and obliterated, while on the part of the male we might speculate on the possibility of the growth of the hair taking the place of the menstrual loss. But the rule in this case, as in others, is not without its exception; a strong and vigorous girl may receive the impetus of growth of hair of the face as well as of perfectibility of the procreative organs at this same moment of division of the neuter into the two paramount sexes; and the growth of hair may be continued slowly and gradually without any deterioration of health, to an advanced period of life, increasing almost imperceptibly with the progress of age. Such cases undoubtedly exist; they must be taken to represent a physiological rather than a pathological type, and can in no way be regarded in the light of disease.

After their divergence at puberty the sexes are

physically distinct as to their peculiar attributes for a number of years, but at length, when the reproductive period is passed, they show a tendency to approximate; the female losing her special character of reproductiveness, inclines towards the male, and the distinctive characters between them are more or less effaced. The period of reproduction over, the beard which had shown itself so slightly in the young girl at puberty is now obtrusively developed, and even in those in whom there was no such evidence at puberty it is also manifested. We deduce from this fact that in woman there exists a close relation between the state of functional health of the reproductive organs and the development of hair on the face, in situations, in which ordinarily none is found, excepting in men. On the other hand, although the occurrence of a beard in a woman may indicate sterility or atrophy or disease of the reproductive organs, and especially of the ovaries, and as such may be common to an advanced period of life, yet we must remember that the beard in a woman is by no means a necessary accompaniment of age, and also that the possession of a beard does not prove sterility, as indeed is conspicuously shown in the case of the Swiss girl so often referred to, who had arrived at the fifth month of pregnancy when she obtained from Dr. Chowne a certificate of her sex; and also in that of Maphoon, the daughter of the "homo hirsutus," of Ava, who was also strongly bearded at the time of her marriage, and who gave birth to two sons.

Nevertheless, the fact is beyond question, that the growth of hair on the face of women after child-bearing is over, is often due to atrophy or disease of the ovaries, and that where a beard and sterility are present together at an early period of life, incompetency of the ovaries may be predicted. This subject was ably illustrated, nearly a century ago by John Hunter in his "account of an extraordinary

pheasant," read at the Royal Society; and since that time has been corroborated by Butler, Isidore St. Hilaire, and Yarrell. John Hunter came to the conclusion that after the period of oviproduction was over, hen-pheasants are apt to assume the plumage of the cock. In a hen-pheasant of this kind which he examined anatomically, he detected the absence of ova, and he mentions the instance of a favourite pea-hen which belonged to Lady Tynte. The bird had produced chickens eight several times, and having ceased to lay eggs, moulted when eleven years old, put forth the plumage of the male and became pied. Yarrell showed that a similar change might occur in young birds; but that in the latter case the sexual organs were always diseased. In seven pheasants which he examined in the winter of 1826-'7, "the ovary was contracted in size, of a purple colour, and hard to the touch; the spherical shape of the ova destroyed in some; the oviduct also diseased throughout its whole length, and the canal obliterated at the upper part immediately preceding the funnel-shaped enlargement at the bottom of the ovary."

It has been customary to associate hairiness in men with muscular vigour and strength; the Aïnos have been described as powerful men, although short in stature and listless in character. Rayer notices that he once saw a Piedmontese athlete, twenty-eight years of age, who had an enormous head of fine silky brown hair, which when brushed out formed a shock four feet ten inches in circumference, but he had little hair elsewhere, and only a scanty beard; his head would seem to have monopolised the capilliferous function of his entire body. Kaposi mentions a similar instance of immense growth of the hair of the head in the person of one Toldi János, a Hungarian athlete, and he further narrates that he knew "a young man from Presburg, of feeble build of body, who had a

similarly rich head of hair, and who could elevate it in the same manner as his athletic countryman in the form of a hood, or could comb it down like a hood reversed from his head, so that the hairs streaming downwards, diverging and thickly set, concealed his whole countenance. Till his thirtieth year he was in excellent health, but at that time had an attack of haemoptysis. The attacks recurred, and he died three years later with manifestations of pulmonary tuberculosis."*

My own experience has not accorded with the popular credence in the association of physical and vital strength with excessive development of hair, inasmuch as some of the hairiest men I have seen, although fairly muscular, have offered unmistakable indications of feebleness of vital and nutritive power. This is remarkably evinced in the case of the hairy woman of whom I have given an account. She was distinctly scrofulous, her integument was thick and flabby, the subcutaneous tissue fatty and loose, and the surface marked with those broad serpentine cicatricial streaks, indicative of weakness of the tissues of the skin, which have been denominated *striæ atrophicae*. It might reasonably be presumed, in her case, that the ovaries would exhibit a state of degeneration. The excessive growth of hair over her whole body could not be ascribed to exuberance of healthy nutrition, but rather to the growth of a lowly vitalised structure in lieu of a higher one, a perverted nutrition, which, indeed, is the essential characteristic of scrofulosis and scrofulous growth.

There can be no doubt that the growth of hair on the faces of women who have never borne or have ceased to bear children, may in many instances be regarded, even at an earlier period of life than that of the cessation of the catamenial function, as a derivative operation consequent on a morbid change in the ovaries. But there is also reason to believe

* Hebra, 'Diseases of the Skin,' vol. iii.

that in numerous instances, simple amenorrhœa or uterine irritation may induce a similar result. I have recently had occasion to observe an example of aberration of trichogenesis consequent on constitutional and cutaneous debility, combined with uterine irritation, of which the details are as follows:—A young lady, of delicate habit, suffered from three successive attacks of alopecia areata; the hair grew again in the two former instances, and will, doubtless, do the same in the present. With this last attack there has been a general failure of strength, deficient appetite, and nervous symptoms of an hysterical character. Menstruation has been for some time torpid and scanty; there are symptoms of uterine irritation; and a pretty strong moustachio, with a few scattered hairs around the chin, have already made their appearance.

A lady of my acquaintance, at the age of seventeen, suffered from amenorrhœa, and while in that state was annoyed by the growth of long hair on her arms and legs. She went to India, where she improved in health, and menstruation was established. When this took place the hairs on her limbs were shed, like the lanuginous hairs of infancy, and entirely disappeared. She married, and became the mother of five or six children, and the skin acquired its natural healthy tone.

The outgrowth of hair, as a consequence of arrest of menstruation, is a fact of old observation, and was well known to the fathers of medicine. In the sixth book of the *Epidemics* of Hippocrates, the case is narrated of a wife who, having borne children, fell into bad health on the exile of her husband; menstruation was then suspended, and she had pain and inflammation of her joints, possibly rheumatism. Concurrently with these symptoms she seemed to be changing into a male, her body became covered with hair, a beard appeared on her face, and her voice was rough and harsh. A similar

occurrence befel Nanningsia, the wife of Gorippus, at Thasus.

I have met with cases wherein hypertrichosis appeared to be attributable to the inipetus of nutritive growth communicated to the whole organisation of a mother by pregnancy. Just as, in this condition, the soft parts generally appear to grow in bulk, so an immoderate growth is manifested by the hair. Of a similar significance is the development and growth of hair during the progress of recovery after severe and prolonged illness.

Rayer quotes from Bricheteau the following interesting case in illustration of this subject:—"A young woman, nearly twenty-four years of age, having a white skin and hair of a deep black, of weakly constitution, and reduced by a pregnancy, during which she had suffered much, a miscarriage and an extraordinary difficulty of swallowing, to the last stage of marasmus, began to recover in the summer of 1826, after six or seven weeks' endurance of an illness which every one thought must inevitably carry her to the grave. Scarcely had she begun to take a little food and to recover her strength, than the skin, which was dry, earthy, and, as it were, wrapped round the bones, became covered, especially on the back, breast, and abdomen, with a multitude of small elevations analogous to those which appear under the influence of exposure to cold. These little risings became brownish at the end of a few days, and a hair was soon afterwards observed on the summit of each. This at first was very short, fair, and silky; but it grew rapidly, so that before the lapse of a month, almost the whole surface of the body, with the exception of the hands and face, became completely velvety. The hair thus evolved was afterwards thrown out spontaneously, and was not reproduced."

Rayer records another case in which local stimulation of the integument by exposure to the air and

to the sun must be taken as the cause of certain hairy patches which he saw on the skin of a medical student, who gave the following account of them :—“ During the summer of 1829 I bathed frequently in the sea ; I used to get out of the water and dry myself in the hot sun of the South ; I then returned to the water. One day in particular, I continued in the sea longer than usual ; some days afterwards, changing my linen, I happened to look down on my breast and saw with amazement a broad sallow or coppery patch on the upper and outer part of the right side. Looking further, I found another patch, exactly like the first, over the iliac fossa of the same side. Both of these spots remain now (1835) exactly what they were in 1829, they have neither changed in colour nor extent.” The hair made its appearance subsequently.

A growth of hair on the skin has been frequently observed on the site of a blister. Such an occurrence is usually ascribed to excessive stimulation of the skin ; but it is usually associated with increased pigmentation of the rete mucosum, a consequence of exhaustion of vital power, rather than of sthenic stimulation ; and, therefore, another example of the dependence of abnormal growth of hair on debility rather than on augmentation of nutritive force.

Rayer mentions the case of a child, two years of age, who presented a considerable growth of hair on a portion of skin which had been blistered, and where the blister had been kept open for three months. He likewise noticed the growth of hair on an inflamed tumour. And Kaposi reports that he saw hair growing on the wrist of a woman in whom frictions of the part with mercurial ointment had been kept up twice daily during three weeks as a treatment for pain and oedema consequent on phlegmasia dolens occurring after child-birth.

I recently had occasion to make notes of the case of a young lady, twenty-five years of age, who was

suffering from that state of congenital defective nutrition of the skin which we term xeroderma in its slightest forms, and ichthyosis in the more severe. She was a slender young woman, thin and far from strong, although in the face she bore the appearance of average health; and she had been the subject of xeroderma from her infancy, a dry, scaly, impoverished state of the integument, with fatless subcutaneous tissue. But xeroderma and ichthyosis are classed by Hebra, without reference to vital and constitutional conditions, under the head of hypertrophy, because they exhibit an excess of epidermis; and, truly, in the case to which I refer, there was not only an excess of epidermic matter, but also an excess of hair, her limbs were remarkably hairy, and her case must be cited as an example of an excess of epithelial products in a skin devoid of the normal capabilities of healthy nutrition; in fact, as an over-growth of hair derived, not from exuberant strength, but from absolute weakness.

The growth of hair upon the skin from simple mechanical congestion and infiltration of the tissues with the colourless constituents of the blood is also not without an occasional illustration. It will be in the memory of most of those present that our old friend, the senior clerk of this college, Mr. Stone, met with a serious accident to his arm a few years back; the limb was kept in splints for some time and bandaged; the bandages caused swelling of the hand, and upon that hand the hair grew to such an extent as to contrast in a marked manner with the opposite hand. A similar occurrence we often see on the legs of patients affected with old ulcers proceeding from a varicose state of the deep-seated veins. Therefore, to constitutional causes of trichosis, particularly such as have relation to the reproductive organs in women, we may likewise add general defective nutrition, and, furthermore,

certain local causes, such as local stimulation, chronic congestion consequent on a blister, together with mere mechanical stasis of the blood and detention of the liquor sanguinis and its white corpuscles, for a considerable time, in the tissues of the integument.

When we come to consider an excessive growth of hair in abnormal situations, such as happens in hairy nævi, we have to remember that the error is not confined to the hair alone, but is especially evinced by the whole of the tissues of the skin. The integument is thicker than natural, it is generally pigmented in a greater or less degree, it is sometimes wrinkled and loose, at other times firm and condensed, sometimes smooth and divested of papillæ, in other instances, rough and warty, and in every case altered from its normal character; presenting, in fact, a state of abnormal and defective development. In these cases our attention is drawn to the intra-uterine history of the individual, and we are led to discover some arrest or perversion of development due to the condition of the mother, and sometimes, in all probability, to some powerful mental impression or some nervous shock experienced by the mother during her pregnancy. Let me refer, as an illustration, to Sir James Paget's case, already mentioned, in which the mother, during her pregnancy, was frightened by a monkey which suddenly and unexpectedly sprung upon her shoulder. Nevertheless, it would be idle to attempt to explain the occurrence of all pilous nævi any more than dermic cysts by reference to this cause; and we must feel ourselves bound to admit that errors of development may proceed from hereditary and nutritive causes as well as from mental causes.

In summing up the causes of hypertrichosis, in accordance with the preceding observations, we may be led to some such conclusions as the following:—

1. That trichogenesis, like any other of the functions of the body, may be vigorous or otherwise.
2. That it may vary in power in different individuals without any disturbance of health.
3. That it may be a consequence of aberration of nutritive function of the skin, dependent on constitutional disease.
4. That in the female sex, being a secondary of the great reproductive function, it may exist without any disorder of health.
5. That, as a secondary of the reproductive function, it is apt to continue active when the primary has become exhausted by age or disease.
6. That, in the same sense, it may be stimulated to increased activity by irritation or disorder of the uterine system.
7. That it may be forced into activity by the nutritive energy imposed on the whole organisation by pregnancy.
8. And, finally, that it may result from stasis of the blood and exudation of its plastic material, the consequence of chronic congestion from whatever cause.

PROGNOSIS.—The prognostics of trichosis, in relation to cure, are far from satisfactory, as it is only in rare and exceptional cases, and then only on the limbs, that we can look for the cessation of growth of the hair and the falling-off of that which is already produced. The hair developed on the face of a woman undergoes no change for the better with time; but, on the contrary, continues to increase slowly, never, however, attaining the bulk and length of that of the male. The hair developed on moles is equally permanent. I have mentioned one instance, in a previous lecture, in which the hair of a mole fell off spontaneously; but this must be regarded as an exceptional and a rare case, and by no means the rule.

TREATMENT.—To comprehend the application of therapeutic measures to cases of hypertrichosis, we must determine the object sought to be obtained; that object, it is evident, will be to destroy the existing hair and arrest its future growth. The method of destroying or removing the hair is only applicable when the growth is of limited extent, and will presently have to be considered; the arrest of its growth is a matter in which we are next to powerless, our only hope of success lying in the possibility of improving the health and vigour of the skin, and thereby superseding a process which is abnormal and frequently morbid. If uterine irritation be the cause of trichosis, we have reason to hope that the relief of that irritation will be the means of suspending the abnormal growth; but if the hairy development be the physiological consequence of a natural decay of the reproductive organisation, then, any treatment directed to the arrest of that physiological law must be regarded as hopeless.

The hairy woman, whose case I have already described, came under my care for treatment, not of the hairy growth upon her body, but for the loss of hair from her head. The two processes of hypertrophy and atrophy, as affecting the hair, were in operation in her case at the same time, manifesting a disturbance of function for which the skin was primarily responsible, but which might likewise be related to a general disorder of her organism. It was one of those cases for which I was bound to acknowledge that medical science had not as yet provided a remedy.

But the cases which most ordinarily come under our observation for treatment are those of hypertrichosis of the face, particularly of the upper lip, the chin, and the neck; the subjects of the affection being women of three periods of life—first, young women soon after puberty; secondly, women of middle age; and, thirdly, women of advanced age.

In all these cases our primary attention should be directed to the improvement of the general health, and our next to the removal of the offending growth.

In the treatment of the general health, we shall find arsenic as an improver of the nutrition of the skin, and also as a nutritive tonic, of much value. It is suitable to the young in whom some disorder of abdominal innervation may be present as a *causa mali*; and equally suitable to those of middle life and the aged, when other general indications have been attended to; likewise, as a nerve tonic and as a nutritive tonic.

But our patients are not satisfied unless we take steps to remove the obstructive hairs. Their universal request is that we should destroy the *roots* of the hairs; but in that particular we are constrained to admit our incapability, and we are obliged to confine ourselves to instructions for the removal of that portion of the hair which makes its appearance at and above the level of the skin.

We not unfrequently meet with ladies who, by great perseverance, have succeeded in removing the hair by plucking with the tweezers; but this process, unfortunately, is no better than the rest—a mere temporary remedy; the hairs grow again, and still continue to grow, while the repeated operation of plucking is apt to produce inflammation of the hair-follicles, and cause a pimply congestion of the part, which often increases the deformity, and renders it more conspicuous than it would otherwise have been.

We have sometimes met with patients who have essayed to destroy the roots of the hair with the aid of a hot needle. It is hardly necessary to say that they have failed in their object; but they have not failed in producing cicatrices, and, by accidentally inserting a little lampblack into the skin with the needle, have succeeded in planting a number of

tattoo marks, which subsequently were ineffectual. In the hands of the surgeon the galvanic cautery has likewise been employed for a similar purpose; but I have not seen it used myself, and cannot therefore report as to its success. Certainly, of all the known means of destroying the papillæ pili within the depths of the skin, it has good reason to claim the highest consideration in respect of prospective results.

In Eastern countries, where baldness of the skin, among the fairer sex, is considered as an especial beauty, plucking the hair is a common practice, and the time chosen for its application is during the bath, when the skin is softened and soothed by warmth and moisture, and is least capable of feeling or resenting the injury so inflicted. To the same countries we are indebted for the invention of the rusma or psilothon, the modern depilatory; and depilatories find their place in every catalogue of cosmetics and similar adornments of feminine use. The depilatories generally employed are intended to destroy the hair chemically, and are composed of substances which would act as powerful escharotics if left for any considerable time in contact with the skin. Their usual constituents are: quicklime, caustic soda, and sulphuret of arsenic, diluted with starch; or a sulphide of arsenic and lime; or a solution of sulphate of barium made into a paste with starch; and when they are used with care and adroitness are sufficiently successful in burning off the superfluous hair. But their operation is necessarily limited to the surface of the skin, and the hair continues to grow as before, requiring at the expiration of a short interval a repetition of the same process.

As an illustration of the evil which may result occasionally from the misuse of depilatories, I may mention that I was consulted a few years back by a young lady for an eschar of considerable size which

was situated in the centre of the upper part of the forehead. It had been produced in her efforts to remove, with the aid of a depilatory, the peak of hair which is not uncommonly met with in that situation. She suffered much pain and temporary annoyance at the time, and escaped very narrowly a permanent deformity.

The earliest mention of a rusma that has come under my notice is one which is contained in the 20th volume of the 'Philosophical Transactions' for the year 1698, edited by the then Secretary of the Royal Society, Dr. Hans Sloane. The 'Transactions' were at that period represented as "giving some account of the present undertakings, studies, and labours of the ingenious in many considerable parts of the world." At page 295 of this volume is an extract from the minutes of the Philosophical Society of Oxford, to the effect that some Turkish rusma had been exhibited to the Society. It was sent by Mr. Smith, chaplain to the Factory at Smyrna, who describes it as a "black earth, which seems as if it were burnt; it is beaten in an iron or marble mortar to a fine powder, and sifted diligently. When you use it, take one part of the said powder and two parts of unslacked lime; put these, mixed together, into a linen rag, which infuse in warm water the space of a quarter of an hour, or till it becomes of a black colour; then apply to the place from whence you would take the hair. As soon as the hair begins to be loose, the part must be washed with warm water and soap."

Now, as the range of action of depilatories is limited by the level of the epidermis, or the neck of the hair-follicle, it has been my habit to recommend to those who consult me, and are in need of this help, the use of the common razor. There is a good deal of prejudice instinctively felt by women against this recommendation; but when they are brought to regard the matter in its proper light,

this prejudice admits of removal. A handsome moustachio in a young woman may be an undoubted beauty, and particularly if it be not too prominent, and so possibly might be a handsome beard, if it ever occurred ; but the ragged, and scattered, and untidy moustachio or beard of a woman of mature life is a positive deformity, and should be dealt with accordingly. If it were dirt or a concretion on the surface, there could be no hesitation as to rubbing or scraping it away ; and the proposal to make use of the razor for the purpose of scraping is a natural suggestion. If cleanliness, or the appearance of cleanliness and comeliness can be easily procured, the prescription is worthy of attention. It has been urged that a depilatory acts upon the hair to a certain distance within the duct of the follicle. This is probably true when it is cleverly employed, but the slight advantage thus gained seems to me to be more than compensated for by the simplicity and ease of application of the razor. Being often consulted in this matter, I suggested to a hairdresser in my neighbourhood, some years ago, that he should fit up a little box containing some Naples soap, a brush, and a razor, to be called the “mechanical depilatory ;” and he informs me that he has a continual although slow demand for the apparatus.

Among other objections made to the simple process of shaving are : the necessity for its repetition, and the danger of inducing a stronger growth of the hair. If the hair could be got rid of once for all no obstacle would be made, but the constant adoption of a practice which in this country is peculiar to the male is looked upon with dread. The reply, however, to this hesitation is simple enough ; most of the operations of life are periodical, and a periodicity of ordinary cleanliness, paring the nails, trimming the hair, &c., is one of the necessities of our nature. Whilst it must at the same time be

remembered that the operation of depilation by the razor would not be required in a woman, oftener than every few days or a week, or even longer. One lady remarked :—“ What if I should be taken ill and be unable to perform the operation ? Alas ! I should then be discovered.”

It must, of course, be understood that the necessity for such a remedy is not of every-day occurrence ; and what I am now saying relates to cases in which that necessity really exists. It is the undoubted duty of mankind to make itself as agreeable to its congeners as possible ; and it would be fair to regard as an example of selfishness the neglect of such attention to personal appearance. The individual herself may disregard her looks even to the extent of wilful carelessness, but she has likewise to consider the impression that may possibly be made upon the mind of others. A lady consulted me very recently for superfluous hair on the upper lip and sides of the chin ; there was really nothing to attract attention and nothing obtrusive in its appearance ; and I found, after some conversation, that it was not her present condition that gave her anxiety so much as the dread that she might become similar in appearance to two friends of her own social circle. The thought haunted her like a phantom, and was preying on her health. I know well that this is not a solitary instance, and I felt that if these two ladies could be made aware of the suffering they were creating in another, the mechanical depilatory would be sought for as a blessing, and may be, as a luxury of life.

I am now on the brink of a subject of tender interest and anxiety to the minds of many young women, in whom the dread of hypertrichosis of the face has seethed in thought until it has produced a state of neuropathic excitation almost approaching to monomania. The victims of this mental suffering hide themselves from society, exclude themselves

even from the family circle, and are a sorrow and an affliction to themselves and to their friends. They are refractory to the language of reason, and are pursued by the constant and eager desire to rid themselves of a defect sometimes more imaginary than real, but which they believe all around them to be regarding. The scope of these lectures prohibits me from dwelling on this painful subject, while it would have seemed negligent to have passed it by without a word. We have to deal with a case of moody neuropathia which seems to engross all the capabilities of the organism of the sufferer.

Among other contrivances aiming at the removal of hair from the surface of the skin are solutions of soda and potash, which act by chemically destroying the hair; and pumice-stone which acts mechanically in its destruction. When the rage for golden hair was the prevailing fashion a few years back, and soda and potash were employed for the purpose of "striking the golden dye," it was soon discovered that the alkali not only bleached, but also destroyed the hair; the hair became brittle and rotten and broke through in the act of combing and brushing. On this principle, namely, to bleach and corrode the hair, I have prescribed alkaline lotions and saponaceous applications from time to time with a perfectly satisfactory result; the hair when of a dark tint becomes less visible after bleaching, and when dry and brittle breaks off and is washed away by ordinary ablution and friction. Pumice-stone is more applicable to the less sensitive skin of the limbs than it is to the face; and I have known several ladies who have valued its use and been satisfied with the result. A combination of the two processes, the chemical and the mechanical, may also be resorted to with a prospect of advantage. An advertisement of frequent appearance in the daily papers announcing a certain cure for superfluous hairs, to be communicated on receipt of postage

stamps to the amount of five shillings or something less, is usually honoured with the response—"pumice-stone."

As a simple bleacher of the hair, and a destroyer of its colour, the aureoline of Robare, a chemical fluid of a scientific character, may be employed with safety. Or we might prefer to have recourse to a more recognisable chemical compound, the solution of the peroxide of hydrogen, which is also harmless, and, when properly used, generally effectual. Chlorine and sulphurous acid are likewise bleachers of the hair. But we have to bear in mind that in the use of these remedies we employ them as bleachers only, and not as removers or destroyers of the hair.

The apprehension of producing a stronger growth of the hair by shaving or depilation is founded on the supposition that the beard of man is indebted for its strength and vigour to the operation of shaving; but, although this may be in some slight measure the truth, yet the modern custom of wearing the beard must have rendered it obvious that the beard is equally strong where it has never been touched with the razor. Nevertheless, although it cannot be denied that frequent cutting and shaving have a decided influence in adding to the strength of the hair, yet it is equally the fact that that influence would be very insignificant as applied to the case of hair growing on the face of women and removed from time to time. The law of growth, which provides for the increase of hair, limits its bulk and its length as well, and no amount of cutting or shaving can force it beyond those limits; but if it fall short of the limit, there is every reason to believe that cutting and shaving will then bring it up to the proper standard. In the case of women, the hair of the face must always present a stunted and pigmy character, and can never reach the dimensions of that of man. The objection, there-

fore, to the removal of the hair on this ground does not deserve for one moment to be entertained.

TREATMENT OF PILOUS NÆVI.—If now we turn our attention to the other branch of the subject, the treatment of *pilous nævi*, we have to bear in mind that the question involves not merely the removal of the hair, but also the removal of the abnormally developed skin on which the hairs are produced. The case is not even so simple as that of a piliferous portion of normal skin developed in an abnormal situation; but, in fact, a portion of malformed skin growing up in the midst of healthy integument. Hence the mere destruction of the hair would be useless, and we shall have to consider the best method of removing the offending portion of skin itself.

Our appliances for the removal of these moles or nævi are, the caustic and the knife. When the nævus is of small size, the caustic is not only the most convenient, but also the most perfect means of destroying it; but when of large size, the knife must needs be resorted to. Our first consideration must be to avoid a scar, and where that is inevitable, to secure that the scar shall be as small as possible; and this is the more important as the seat of the nævus is most probably on a visible part of the skin, possibly the face, and the subject of our operation one of the softer sex, and very likely a child. It may be argued in favour of the caustic, that it is least alarming to the sensibilities of the patient, it has less the character of a surgical operation, it admits of being more limited in extent, and, by removing the smallest quantity of tissue, is least likely to induce subsequent deformity from contraction of cicatricial tissue. Whereas, with all the care the surgeon may employ, there must necessarily be a greater extent of ablation of tissue by the knife than is necessary for the removal of the actually offending part.

In the selection of a caustic there may be some difference of choice resulting from habit, experience, or a variety of considerations. Some surgeons may prefer nitric or other of the acids ; but, for myself, I believe none to be equal to a saturated solution of potassa fusa. By means of a morsel of sponge affixed to the end of a bit of stick with the aid of sealing-wax, the minutest drop of the caustic solution may be lodged on the centre of the spilus. For some minutes there is no sensation whatever, and a child is disarmed of its fears ; shortly, however, there is a very bearable amount of burning ; but, at the end of ten or fifteen minutes, no trace of pain remains. The action of the caustic in the meanwhile is curious. At first a small vesicle containing a translucent amber-coloured and viscous fluid, a minute blister in fact, is raised ; the caustic fluid has sunk into the centre of the prominence, and is gradually diffusing itself around and towards the circumference until the whole spilus is involved, and to all appearance converted into a semi-transparent greyish, gelatinous mass. The nævus looks as if it were absolutely gelatinized, and, left to itself, dries up in a few hours into a hard scab ; and the scab is shed at the end of twelve or fourteen days. The epidermis is probably unbroken, or if it be broken, the breach results from solution of its horny substance by the alkali ; but the caustic finds its way, nevertheless, into the mass of the spilus and converts its connective tissue into a homogeneous gelatinous pulp.

I am now, of course, describing a small spilus requiring one small and simple drop of the caustic for its dissolution ; but where the nævus is larger the caustic may be spread out upon its surface, but always so as to keep within the limit of its border, that is to say, we must allow for the diffusion of the caustic in circumference as well as in depth ; a kind of enucleation is effected by this procedure, and the limit between the abnormal and the normal

tissue offers a temporary obstacle to its further progress. When the nævus is both prominent and deep it is my habit to wipe away the gelatinized surface with a cloth and make a second application of the caustic so as to reach a greater depth, and occasionally three or four such repetitions may be found necessary.

There is also the eventuality of not completing the total removal of the nævus at one sitting, in which case, the remainder of the growth may be attacked at some future time. Indeed, as the manipulation is so simple, and I may say painless, it seems to me to be better, with the view of limiting the dimensions of the cicatrix, to do too little at a time rather than too much; as that which remains may be easily accomplished at a future period. I need hardly add that when the operation is over, the use of dressings of any kind is not required; a little Fullers' earth dusted on the part being the only protection likely to be needed.

In nævi of greater extent where the knife is adopted and the incisions embrace an elliptical area, there is necessarily much greater loss of substance in breadth and in depth than in the procedure by caustic; there are, the terrors of the operation, which are great to the patient, though the matter is trifling in itself; there are the chloroform or ether, or nitrous oxide gas, and the dressings; a cicatrix that cannot be avoided, and, possibly, some deformity from contraction of the cicatricial tissue. Nevertheless, in the case which I am now supposing, that of a large nævus, there exists no alternative.

BALDNESS.

ALOPECIA. CALVITIES.

From quantity of hair in *excess* to quantity in *defect* the transition is simple and natural. The human body in its normal state, and taken as a

type, presents to our observation hair which is long and fine, long and coarse, short and fine, short and coarse; and hair which, in consequence of its extreme fineness has been compared with down. So, in an abnormal state of the body, these varieties admit of imitation, and of being carried even to the extent of complete absence of hair.

It is no uncommon thing to meet with persons in whom the hair of the head is not only short, but refuses to grow longer; its law of limitation, restricting it to a very insufficient length; this may occur without any alteration of texture of the hair, or of numerical quantity. At other times, besides being short, the hair is stiff and rigid, resembling in quality the character of hair which by the ancients was denominated *sclerothrix*. In other cases it is abnormally fine, as well as being abnormally short, and is more or less deficient in numerical quantity. When the hair of the head resumes its growth in young men after ordinary baldness, the hair will frequently remain persistently short, more or less fine, and generally deficient in numerical quantity. Moreover, a peculiar kind of baldness often accompanies this abnormally short hair, namely, a gradual retreat of the hair on the sides of the frontal region, so as, in some cases, to leave the hair at the summit of the forehead standing out after the fashion of an isolated tuft.

But, without any alteration in length, it is well known that the hair undergoes a perpetual process of loss, and that the quantity varies in the aggregate very considerably; it may be so slight as scarcely to attract attention, or it may be so abundant as to constitute a veritable *desluvium capillorum*, or flowing away of the hair. It is generally recognised that the hair comes off more freely in the autumn after exhaustion of the skin, consequent on the relaxing heat of summer, than at any other

period of the year. Sometimes it occurs in a less degree after the torpor of the skin occasioned by winter; but most frequently of all, after febrile illness attended with sweating, and especially after parturition.

The defluvium capillorum in these cases, as affecting the scalp, is ordinarily, general. It occurs less frequently in other regions of the body; but its chief character is that of being general. Erythematous syphilis is also very commonly accompanied with defluvium pilorum, but this always occurs on the congested portions of integument, and therefore presents usually the pattern of the measly or rose-coloured eruption, and is not strictly general. The measly distribution of the defluvium, therefore, becomes a pathognomonic character of alopecia syphilitica.

When defluvium capillorum is sufficiently profuse, or if it have continued for a considerable time without a compensating reproduction, it then gives rise to actual baldness or alopecia. But it is evident that serious inconvenience may be experienced in the way of loss of the hair, before the condition of actual baldness is attained.

To comprehend thoroughly the phenomena of baldness, we shall have to study it in that form of alopecia which is usually termed "senilis." The skin first appears through the scanty hair at the summit of the head over the parietal bones; then it shows itself on the sides of the frontal bone, next on the upper part of the occipital bone and the centre of the frontal bone; the hair retaining its hold for the longest time on the fleshy parts of the scalp around the base of the cranium; so that while the hair may be healthy and luxuriant over the ears and at the back of the head, the whole of the vault of the cranium may be denuded.

But although we term this form of baldness *alopecia senilis*, it may also make its appearance in

comparative youth and vigorous manhood, constituting a premature baldness, *alopecia præmatura*. The loss of hair on certain parts of the head is attributed, apparently with just reason, to the thinness of the scalp at the summit of the head in comparison with that of the circumference. For a similar reason the less frequent occurrence of baldness in women than in men is supposed to result from a greater thickness and greater fattiness of scalp, conditions which permit of a freer and more complete circulation of blood through its vessels.

But although the female sex may present least frequently the phenomena of regular *alopecia* founded on the type of *alopecia senilis*, women are more particularly subject to attacks of partial baldness or *alopecia partialis*. This is most commonly met with on the summit of the head in the region of the *corona capillitii*, and is consequent on the unnatural strain imposed on its roots by the fashion of dressing the hair. It is also met with, and due to similar causes, along what is called the front parting of the hair; and likewise, and also referable to identical causes, at the sides and back part of the scalp.

Partial baldness of the kind I am now describing may result equally from other forms of injury experienced by the scalp. In children it often follows the inflammation of the integument accompanying pustular folliculitis or *kerion*, hence popularly denominated "scalled head." I have known it proceed from a bruise. I once saw it in a lady, occasioned by the accidental tearing out of a few hairs from the head; and a gentleman, a clergyman, presented it in a marked degree as the consequence of a sting by a bee.

But the commonest of all causes of this partial *alopecia* as it occurs in women is the undue strain which is made upon the hair of the summit of the head by the manner of wearing the hair, by the cross parting, by the use of combs and pins, and

especially by the spiral twist which converts the back hair into a coil. It is neither the weight nor the heat of the chignon, but the unnatural traction of the hair, frequently in a line opposed to that of its normal direction. In this case we often get a patch of alopecia, triangular or oval in figure, and obviously referable to the cause I am now describing.

I shall now pass on to a very interesting form of alopecia, which occurs in the shape of a circular spot or disk, leaving an area of bald skin which shines out in the midst of the hair, and is thence denominated *alopecia areata*, or more simply *area*. It is a very striking form of baldness, and has received the attention of medical philosophers from very early times. Celsus, in his chapter "de areis," describes a kind of baldness which resembles this affection; he terms it the worst form, namely, that which condenses the skin, destroys the fat, and renders the surface totally smooth. In compliment to Celsus some authors have termed this variety "area Celsi," but his description is too confused and brief to justify the appellation. Willan includes it in his budget of scalp diseases under the name of *porrigo decalvans*. It is essentially a baldness of the completest kind, and, as Celsus truly calls it, "an atrophy of the skin;" an atrophy resulting from exhausted nutrition. Indeed, if we care to study an atrophy of the simplest sort, we shall find all its characters in *alopecia areata*. The affected portion of the scalp is utterly denuded of hair, not a single shaft remaining; the surface is consequently smooth and polished as ivory, even the pores or apertures of the hair follicles are shrunken and barely appreciable; it is thin and pale from collapse of the skin and exclusion of the circulation; it is benumbed from exhaustion of nerve-power; and it is depressed at the centre, but becomes fuller towards the circumference where a

few withered stumps of hair may still be discovered. These stumps are shovel-shaped or club-shaped in figure, of the full size of the broken hair at the broken extremity, but attenuated into thin, wasted, colourless filaments towards the root. The barren patch tells its own story, and that most eloquently; suddenly deprived of blood and nerve-force, the hair ceases to be nourished (trophoneurosis) and falls out, while the hairs in the circumference, which are not at once killed by the shock, bear evidence of a starved and attenuated existence.

The history of area as it occurs on the head is, that it appears suddenly. It is there to-day, but was not observed yesterday; the hair must have been carried away by the comb unseen, and it has attained its full extent at once, or it may have commenced as a spot of small size, and have increased rapidly to its present dimensions. Area is sometimes single, more frequently it is multiple; its common size is one inch in diameter, as big as a shilling or a half-crown piece, but it may be smaller or even larger. It is perfectly round, and is therefore popularly confounded with ringworm, to which it bears no relationship whatever. Two of the disks will sometimes run together, and produce a patch resembling the figure 8; at other times several may become blended into a patch of irregular shape and larger size, whilst occasionally they spread with such rapidity as to denude the entire scalp.

Area may show itself by one or more isolated disks on one or other side of the scalp—that is to say, it may be unilateral or bilateral; it is equally common in the frontal, parietal, temporal, or occipital region; and at other times, as I have already remarked, universal. Moreover, it is not limited to the scalp, but may appear on the face or other part of the body. In children and women it is generally met with in the scalp; but in men its more frequent seat of occurrence is the beard.

Area will sometimes get well spontaneously—that is to say, the hair will grow and cover the spots completely without leaving a vestige of their existence. But even in this case the baldness may return from time to time at the lapse of uncertain intervals of greater or less duration. In a former lecture I have mentioned the case of a young lady who had three attacks of area at the age severally of seven, thirteen, and twenty-seven; from the first two she recovered completely, the third had only just commenced. It may also be stated that whilst re-growth is progressing favourably on several spots, new areæ are apt to be developed in other places, and the cure may be protracted for an indefinite time. When the hair first resumes its growth in the progress of cure, it is weak and pale, often colourless or white, and it is only by degrees that it attains its normal colour and strength. While, in less favourable cases, the newly produced hair remains permanently white. The same remark applies to the beard of man as to the scalp of women and children.

The atrophy of the skin and hair so characteristic of alopecia areata is still more remarkable and decided when alopecia extends to the entire body, constituting calvities universalis. As may be supposed, there are intermediate degrees between an area which has spread over the head alone and calvities of the whole body; most frequently, in addition to baldness of the head, there is loss of eyebrows and eyelashes. But cases are not wanting in which the body also suffers, beard, axillæ, and pubes are alike denuded of their pilous covering, and scarcely a vestige of hair can be found in any part. Such cases as these are happily rare; but they are, nevertheless, met with occasionally, and are most unpromising as to their prospects of cure; the skin is pale, soft, and flabby, and its functional power, at least so far as hair pro-

duction is concerned would seem to be wholly suspended.

There are some other forms of loss of hair or alopecia, more or less complete, which are dependent, not on simple atrophy, but on inflammatory affections of the skin, and the consideration of them must therefore be deferred to a later period of the course. I allude especially to an alopecia of the eyebrows in young persons, and of the scalp in persons of mature age, which is due to a chronic form of folliculitis, in the adult termed *xerasia capitis*; and also to the alopecia of *tinea capitis* or common ringworm, which, in fact, is apparent rather than real, inasmuch as the roots of the hair retain their attachment and normal relations within the follicle. Moreover, there may likewise be seen from time to time other local baldnesses of limited extent, which belong to the category of cicatrices rather than of true alopecia.

CAUSE.—The cause of defective growth of the hair and of baldness in general cannot be better expressed than by the simple word “*atrophy*,” meaning thereby exhausted nutrition, and consequently exhausted function of the skin. Even in the case of short hair, of hair which refuses to grow, we recognise a defect of vital power and nutritive vigour of the skin; and this is still more obvious in the advanced forms of alopecia and calvities.

In some instances the defect must be attributed to a want of constitutional power, as in cases of alopecia occurring in children, and in that which is associated with derangement of other functions, and notably of menstruation. In another series of cases, the reduction of peripheral power consequent on advancing years must be regarded as the cause. Sometimes we may find reason to treat of the want of proper growth of the hair as resulting from the derivative influence of more important vital functions. A considerable number of cases are evidently

related to derangement of innervation or tropho-neurosis, and are associated with neuralgia. While a few, also neurotic in their nature, are consequent on the shock of local injury to the skin.

In alopecia areata a feeling of itching has been observed to precede the fall of the hairs, and patients have been forewarned of its occurrence by that symptom. The neurotic dependencies of the affection may, however, be better illustrated by an example. A lady, aged 45, has been for some months nursing an invalid parent, and anxiety, watchfulness, and confinement have told on her health, and rendered her highly sensitive and nervous. Three months back she was seized with intense neuralgic pain in the side, accompanied with a sensation of scalding heat in the skin, a kind of *herpes sine herpetibus*. Then a pruritic irritation spread over the whole skin, but was most severe in the scalp, where it assumed a tingling character. These are common symptoms of cutaneous neuralgia. About two months ago she was startled by finding the hair coming off in locks from the sides of her head. Several disks of alopecia areata were formed, and shortly afterwards the baldness extended from the temples to the occiput on both sides, leaving scarcely a hair standing on the bald surface; there was also a broad band of alopecia in the course of the sagittal suture.

When alopecia areata is unilateral, that is, developed on one side of the head and not on the other, it is generally referable to some disorder of the frontal or occipital nerves; and, indeed, the same may be said when it attacks both sides of the scalp and exhibits a tendency to creep along the sides or over the vault of the cranium. The Fathers of Medicine had already noted this fact, and stamped it with a name, Ophiasis, from ophis, a serpent, in consequence of the serpent-like figure of the disease. Celsus, in his description of two varieties of area,

in reference to the second of them observes: "That form, which from its resemblance to a serpent's trail is named ophiasis, begins at the occiput, never exceeds the breadth of two fingers, and creeps onwards by two heads towards the ears, sometimes to the forehead, where the heads unite over the middle of the forehead."

Occasionally the constitutional character of the affection is manifested by its being hereditary. I have among my notes the case of a young lady, twelve years of age, who had been the subject of alopecia areata of the back part of the head for three years. During the first two years the hair fell off and grew again, and no attention was paid to it; more recently, however, the skin remained bald, and the hair has not been reproduced. Her mother informed me that she herself had suffered in a similar manner all her life through; her hair was wont to come off in patches in the early part of the year, increasing in extent monthly, but that in the summer the hair was as regularly restored.

Another case, likewise exhibiting an hereditary character, I am tempted to narrate here, in consequence of its interesting relations to the neurotic phenomena of the disease. A lady, aged 30, had been subject to alopecia areata from the age of ten, consequently for twenty years. The affection first showed itself after an attack of scarlatina, and, with the exception of three occasions when the hair returned completely, she has suffered from it ever since. The occasions referred to were pregnancies; she has borne three children and had three miscarriages. She observes that at the commencement of pregnancy the fall of the hair increases, but that after the sixth month the hair begins to grow, and then grows thickly and rapidly. When it first appears it is white, but soon attains its natural colour, a rich dark brown, and then there is not a single white hair visible over the whole head.

Throughout life she had an abundance of hair, almost a superfluity, for she has been several times constrained to have it cut to relieve herself of its weight. This observation relates more particularly to her childhood's days before the hair began to fall, and to the months immediately succeeding her three pregnancies. She is made aware of the approach of the disorder by a "running" or creeping sensation under the skin; this prompts her to rub the part, and she then feels that the sensation is under the skin, and not upon its surface. The skin at this time is pinkish in colour, and to use her own expression, has a waxy appearance, and in about three weeks afterwards the hair comes off, and the bald area is speedily established. At the present time the summit and the back of the head are quite bald, and there are several bald patches on the left hemisphere, and a few on the right. The disorder changes sides from time to time, one while giving preference to the right, and another while to the left.

Her medical history is one of ordinary good health; the family stock is sound; she is well-formed and well-grown, and presents the general characteristics of a robust constitution. It must be noted, however, that her father, who also suffered from scarlatina at the same time as herself and some of the rest of the family, himself had an attack of alopecia areata, which troubled him for a long time. This fact, and the peculiarities of her own hair, its excess one while and its deficiency another, probably point to what may be termed a trichonotic diathesis.

At eighteen she had a second attack of what was called scarlatina, but of less severity than the first; and she was married at twenty-three. Menstruation has always been painful from its earliest appearance, and is accompanied with a neuralgic pain, taking the direction of the sciatic nerve, sometimes in one and sometimes the other leg. This pain continues

for a day or two; but at her confinement is very severe during the whole period of labour. The menses return every three weeks and last for a week; and if the discharge be accidentally arrested before the usual time, she is worse the succeeding period. Moreover, a sudden check is accompanied with a painful feeling of fulness of the head. This, however, is a rare occurrence; but latterly, after her last miscarriage, a continuous hæmorrhage was prolonged for six weeks, and when it ceased was re-excited for another week by too early exertion, and by undue muscular effort.

Let me summarise the points of interest presented by this case, as follows:—

1. Hereditary tendency is shown by a simultaneous attack in her father at the same time as in herself.

2. The exciting cause is one which depresses the powers of the organisation—for example, scarlatina, dysmenorrhœa, menorrhagia, the early months of pregnancy.

3. Loss of hair is very frequently associated with a previous superabundance of hair; seeming to imply fatigue or exhaustion of a function from excessive exercise.

4. The restoration of the hair is associated with an improved state of nutrition; shown in a marked manner in this case, where active production of the hair was spontaneous with the augmented energy of nutrition accompanying foetal growth.

Total loss of hair, as it occasionally appears in children and young persons, may very fairly be assumed to be dependent on a congenital cause; but occasionally other causes are so clearly manifested that we cannot refrain from recognising them, and admitting their influence.

I met recently with a striking case of universal calvities associated with melasma of the skin, which I will now briefly describe.

The patient was a commercial traveller, aged 35. The swarthiness of his skin commenced two years back in the form of small patches, situated on the abdomen, and thence spread upwards by degrees, until the various patches coalesced, and the whole surface of the trunk, neck, and face, and, in a less degree, the limbs, have assumed a greyish-black hue. From the history of its development and progress, I regard the swarthiness as belonging to pigmentary versicolor rather than to melasma, and this diagnosis is corroborated by the looseness of the cuticle, which rubs off easily.

The calvities has been only three months in existence ; it began as ordinary alopecia areata on the occiput, and in one month robbed him of every hair of his body ; not a vestige of hair is to be seen on the scalp, the eyebrows or eyelids, or in fact anywhere else.

The skin, as is common in general calvities, is soft, relaxed, and ill-nourished. It is deficient in sensibility, and, as he expresses it, feels cold, clammy, benumbed, and dead. He has never had itching or pain, but sometimes a sensation of creeping in the integument ; he perspires but little, and ten years ago perspiration was arrested for a considerable time, and replaced by a dry heat of the skin.

As a conmercial traveller he has lived freely ; but married three years back, and has been more moderate since. He has experienced no loss of virile power, but rather an increase.

He was never a strong man, but now he considers himself weakly. There appears to be nothing faulty in his family stock. Ten years ago he had syphilis slightly, but does not appear to have suffered any subsequent effects ; he has had pneumonia three times, and ophthalmia several times, both apparently from fast living. The most important failure of his health dates back three years, just before he married. He was then involved in litigation, had a

good deal of head work, and for three months suffered from want of sleep. A year later he went to Llandudno, feeling, as he expresses it, "shook;" he was nervously feeble, had lost appetite, and was troubled with nausea. These symptoms have continued with him, in a milder degree, and he still complains of nausea.

Thus, taking the salient points of his case, we find brain-irritation and debility three years since; versicolor making its appearance two years ago; nausea and nervous debility of eighteen months' standing; and sudden fall of the hair three months back.

We can none of us doubt that there is some serious nerve lesion somewhere, to which all these symptoms are attributable; but it would be difficult to say where. Is it in the brain? or, is it in the organic nervous system? And if in the latter, is the solar plexus, or are its dependencies the seat of the primary disorder? He does not appear to have had constitutional syphilis, and therefore we cannot accuse the syphilitic dyscrasia.

DIAGNOSIS.—The diagnosis of alopecia, and of the forms of alopecia, may be deduced from the foregoing history of the complaint. Simple madesis or defluvium capillorum may occur equally on all the regions of the head, although it will be found to evince a tendency in favour of parts which are least nourished, or which have been subjected to violence, for example, the summit of the vault of the cranium and the parting lines where the hair is unduly stretched, and where it is drawn in direct opposition to its natural current or set of growth. The alopecia of age is earliest and most conspicuously developed on the summit of the cranium, where the scalp is thinnest and the supply of blood least perfect. Both these forms of alopecia may be said to be subservient to the circulation of the blood; whilst alopecia areata is a neurotic affection,

and its circumscribed disks select in preference the course of distribution of the cutaneous nerves and the fleshy portions of the scalp. The total absence of hair, with the consequent smoothness of the skin, together with its paleness and utter freedom from vascular congestion, distinguish it from tinea in which the stumps of the hair remain, and where there is roughness and redness and turgescence of the skin, rather than atrophy. Whilst alopecia syphilitica is to be distinguished by its mottled or measly distribution, corroborated by the well-known constitutional symptoms of the parent disease.

PROGNOSIS.—The prognosis of alopecia is more encouraging than at first sight might be expected. When the hair which falls in winter grows in summer, when it falls under the influence of disturbance of health, and recovers when health is restored, when it comes off after child-birth, and grows again after the shock of parturition is over; when the disks of area become clothed again after a limited period of baldness, we have in these and other phenomena very strong evidence of the recuperative power of nature in the restoration of the hair, and strong grounds to believe that the hair is more amenable to therapeutic treatment than has heretofore been generally recognised. On the other hand, when, instead of youth and fair constitutional powers, we find ourselves opposed to the wasting influence of age, or to a congenital or organic debility of the skin, our prognosis cannot be so satisfactory. Nevertheless, as in the most hopeless cases the seeds of vitality still linger, we should be neglecting our duty were we to abstain from making the necessary efforts to promote a cure. I have seen a few hopeless, I will not say utterly hopeless, cases in the course of a long experience of the subject, but I must regard them as the exception, and not as the rule; whereas the

number of hopeful cases very considerably preponderates.

TREATMENT.—In entering upon the subject of the therapeutics of alopecia, we have first to consider what it is that we propose to treat. The answer is obvious—a weak and irritable organ, maintained in its morbid state, to a greater or less extent, by constitutional exhaustion and debility. Hence, while a local treatment first presents itself to our mind, we should be failing in the first rudiments of medical philosophy if we did not at the same time adopt a fortifying constitutional treatment, a conservative treatment, as it has not inaptly been termed.

In most disorders the constitutional treatment is very properly placed before the local treatment; but in the instance before us it may be admitted that the local evil is the most pressing consideration; it is that for which we are consulted by our patient; for the most part, that alone is recognised by our patient, and therefore we may very reasonably, primarily address ourselves to it, and defer our injunctions for constitutional treatment until the local treatment is disposed of.

And first let us consider the prophylactic treatment of the hair. The scalp should be kept constantly and abundantly brushed, with the view of giving the advantages of exercise to the skin, of promoting circulation, elimination, and renovation. This process constitutes the basis of the operation of shampooing, and is applicable to every state of feebleness of nutrition of the skin. Our patient, suffering already from defluvium capillorum, may exclaim that brushing brings off the hair more abundantly than before. To which we must answer, brushing gives tone and vigour to the integument of the head, which is our primary aim, while it is only the weak and already loose hair which can be disturbed by the brushing; moreover, the uprooting of the hair brings with it in this case

its natural cure, the papilla pili resumes a more healthy trichogenesis, or, more probably, new and vigorous papillæ are developed in place of the old and infirm. In fact, brushing the head, even over the denuded parts, in area and ordinary alopecia, cannot be too strenuously advocated.

Am I to wash my head? is another question that we have constantly put to us. My answer is—no. Water is not so effective a stimulant, and therefore a tonic, as brushing. The dampness of the hair might lead to inconvenience, and the medicine of washing the head lies in the subsequent rubbing to procure dryness of the scalp. The douche and sea bathing introduce a new element of activity, and therefore are of greater value than ordinary washing, but are by no means equal to the application of diligent brushing.

It is a moot and undetermined question whether cutting and shortening the hair possess advantages; that these advantages, if any, cannot be considerable is proved by the existence of a doubt upon the subject. Instances are manifold in which the uncut hair of children has been preserved all their lives without detriment to the growth of the hair. On the other hand, the hair of children left to itself will often become ragged and uneven at the ends; showing, as we must be ready to admit, that there are considerable differences of quality of hair in different individuals. And here an argument is raised in favour of regular cutting and trimming of the hair; in the male this is highly necessary, and, as a rule, it would seem to be equally so in the gentler sex; and the practice of cutting the tips of the hair every four or six weeks, as a means of its preservation, must be authoritatively enforced.

The experiments of Berthold are doubtless familiar to most of my hearers. The rate of growth of the hair of the head, according to my own observation, is six lines a month. In young women between the

ages of sixteen and twenty-four it was found by Berthold to be seven lines, and in addition to this is his discovery, that hair grows one-sixteenth faster during the day than at night; more quickly in youth than in age; in summer than in winter. He likewise ascertained that it grew more speedily when cut than when left to itself, and more rapidly when cut frequently than when cut seldom. It is not quite certain that the active growth of the hair is a real advantage, for, when the hair has never been cut, it acquires its normal length and then remains stationary.

The argument of the speedy growth of hair after cutting I have had to combat in a previous section of these lectures when I was occupied in recommending its practice for hypertrichosis; but my defence lies in the fact that cutting renders the hair neither longer nor thicker than its originally destined dimensions; although when weak and slender, as in the case before us at present, it may help to raise it to its normal standard. In a word, when the hair is cut, nature uses her efforts to restore what is lost, and not to increase the normal length and bulk of the hair. Cutting the hair may, however, be very advantageously applied to snipping off close to the skin those short and slender hairs, commonly denominated young hairs, which are so frequently associated with madesis and alopecia, and which are feebly putting forth their powers to attain the bulk and length of their normal predecessors.

Our curative remedies applicable to the promotion and restoration of the growth of hair are all of them stimulants. In my popular treatise devoted to the skin and hair, I have given a catalogue of nearly 100 substances which have been recommended from time to time for the promotion of the growth of hair; and those of them which are not stimulants possess some obscure and mysterious

virtue, which, in our present state of enlightenment, may be difficult for us to appreciate. For example, there is the fat of sundry animals, including the bear, in the shape of bear's grease, and of man ; but in the latter instance we are forewarned that the fat must be taken from a scalp which is well covered with hair; in other words, the fat must have been indoctrinated already in the usage of supplying a rich and appetising nourishment for the hair. The stimulant principle, but without the attempt at refinement implied in the previous examples, is further illustrated by a paragraph which appeared in the *Times* a few weeks since. It is as follows :—

“ A certain Consul, in his report on the trade of Nicolaieff during the past year, states that that part of South Russia continued free from cattle plague. But his attention was drawn in the summer to several cases of sudden baldness of oxen and cows, and the loss of tails and manes among horses. He recollects that a former servant of his, prematurely bald, had got the habit, when trimming the lamps, of wiping his petroleum-besmeared hands in the scanty locks which remained to him, and the result was a much finer head of black, glossy hair than he ever had before. At the Consul's suggestion the owner of several black cattle and horses affected as above-mentioned, tried the remedy, and found that it effected a quick and radical cure. The Consul observes that the petroleum should be of the most refined American qualities, and be rubbed in vigorously and quickly with the palm of the hand at intervals of three days, six or seven times in all.”

The Consul, doubtless, will be pleased to hear that we entertain no doubt of his facts ; that his servant had become prematurely bald ; that his servant, after cleaning the lamps, did wipe his “ petroleum-besmeared hands ” upon those of his scanty locks which remained ; that, moreover, in the course of nature and time his hair did grow again,

and, furthermore, that petroleum oil, crude or distilled, was not a bad remedy for mangy cattle and horses which had lost their hair, and the more especially as the mange in cattle and horses is commonly associated with the presence of an acarus. A few days after the appearance of this paragraph, a friend of my own, a gallant captain of a Highland regiment, whose hair had refused to grow as luxuriantly on his head as on his busby, wrote to me to ask what form of petroleum I had formerly recommended to him, as he had lost his prescription. My answer was, that I very much suspected that he had been studying the *Times*, no very great offence; but that if his object were to make his hair grow he must follow, to the letter, the instructions of the paragraph; he must clean his own lamps and then polish his hands upon his head. Petroleum is a rude stimulant, and is a well-known, but coarse, remedy for ringworm.

In considering the question, What stimulants are the most suitable as applications for the head? our thoughts very naturally single out cantharides, acetic acid, and ammonia. In my early experiments on these and other remedies, I made use of a variety of stimulating substances, not excluding croton oil; but croton oil, although excellent as to its stimulating effects, I found peculiarly unmanageable as an application for the head. In one instance, in a young lady, it produced so much redness and swelling, symptoms which extended to the eyelids and face, that I was threatened with a legal prosecution for prescribing it. Time, however, came to my relief; in a few days the swelling subsided, and as the hair grew again satisfactorily I was let off without action, and without thanks. The croton oil application having played me a similar prank on a second occasion, I was driven to the conclusion that croton oil must be discarded.

The milder and more manageable stimulation of

cantharides has gained for it a popular character, both as a stimulant and as an epipastic ; but it also is not without its reverse. It is too apt to stretch its stimulative power to the extent of irritation, to give rise to inflammatory congestion and vesication, and sometimes to suppuration and ulceration. Every now and then it may come across a peculiarly sensitive skin, while at other times it may have been employed too energetically, both as to quantity and time. Moreover, I have seen several instances in which cantharidine has been absorbed into the system and has given rise to ischuria. As a rule, therefore, I rarely use cantharides, and when I do so it is always in a guarded manner. Certainly, it is not a remedy to be trusted to the acknowledged indiscretion of the public, as a popular remedy.

Another application for the treatment of baldness, and one which is extensively used, and may be said to be popular, is acetic acid, or rather, strong pyroligneous acid. I at one time prescribed it myself, but have discontinued its use for many years. But judging from the reports of those who have employed it, it is still a favourite, although its favour is somewhat alloyed by the convicting evidence of a strong and disagreeable odour.

It was after much consideration and study of the subject that I fell back upon a stimulant, decidedly superior to both the preceding, and perfectly harmless in its application—I mean ammonia. Ammonia may be limited easily to the bounds of stimulation ; it is unlikely to create inflammation and its consequences ; it is neither absorbable into the system, nor could it do harm if such were the case, and its odour, refreshing at the moment of its use, speedily evaporates. A formula for an ammonia lotion is to be found in Willan and Bateman's book ; ammonia is the active principle of a lotion for the hair of considerable reputation called Locock's lotion ; and it is also the essential ingredient of a

lotion which is sold throughout the length and breadth of the kingdom under my name. What the precise ingredients of the lotion in question may be I am unable to tell, nor can I be sure of its source; but I suppose it to be prepared from one of the forniulæ published in my work on the diseases of the skin many years ago. As a published formula the public are entitled to its use, and I can only humbly hope that it has proved as useful in its mission as its reputation is universal. And I am further led to hope that its extensive and general adoption may be a true witness of its usefulness.

Now, in a case of ordinary madesis or defluvium capillorum, the popular falling-out of the hair, I still prescribe a lotion composed of strong liquor ammonia, almond oil, and chloroform, of each one part, diluted with five parts of spirits of wine or spirits of rosemary, and made pleasant as to fragrance by the addition of a drachm of the essential oil of lemons. The instructions for the use of this lotion are: that it should be sponged upon the skin of the head after thorough friction with the hair-brush. No doubt there are cases in which this lotion must be used with caution. It may be diluted if necessary; it may be applied sparingly or abundantly; with or without friction; and it may be used daily or otherwise.

There are cases in which a less stimulating and even a refrigerating lotion may be required, and where an objection may be raised to the quantity of oil contained in the former lotion, in which cases a lotion of borax and glycerine, two drachms of each to eight ounces of distilled water, will be found cooling and refreshing; this lotion allays dryness of the skin, removes scurf, and subdues irritability.

In cases of complete baldness, the phalachrosis of the Greeks, and also in alopecia areata, a stronger stimulant application will be required. In such a

case I recommend frictions with a liniment composed of equal parts of liniment of camphor, ammonia, chloroform, and aconite, to be well rubbed into the bare places daily, or even twice a day, so as to produce a moderate amount of stimulation. In cases of ophiasis, due to neuralgia of the cutaneous nerves of the scalp, this liniment is very valuable. In other cases the liniment of iodine may be painted on the bare patches daily; or they may be stimulated by friction with the ointment of tar, of cantharides, or any other powerful stimulant. Painting the disks of area with the epipastic fluid of the pharmacopœia may also, occasionally, be resorted to, or the epipastic fluid may be diluted with spirits of camphor. The intention of all these local remedies is to stimulate without setting up irritation; to increase the energy of circulation and innervation of the part, and in some instances to abstract an excess of fluids from the tissues of the skin by inducing exudation. But these results must be accomplished, as far as possible, without pain, and without severity.

The constitutional treatment of alopecia should consist in the adjustment and regulation of the functions of digestion and assimilation, and where no other special conditions are to be fulfilled, the adoption of a tonic regimen and the administration of tonic remedies. Of these last, arsenic bears the palm and may be advantageously prescribed in doses of two or four minims three times a day, directly after food, and in any convenient vehicle.

Alopecia syphilitica will yield very readily to the treatment applicable to the parent disease, namely, iodide of potassium, with the local inunction of the nitric oxide of mercury ointment diluted in the proportion of one part to three or four of benzoated lard or vaseline, or the use of a lotion of the perchloride of mercury.

GREYNES OF THE HAIR.

POLIOTHRIX; CANITIES.

Next to quantity of hair, its excess and deficiency, the most striking aberration of the hair from its normal standard, is that of *colour*. The hair of youth and manhood ranges in colour between a yellowish and reddish hue and the deepest black, and within those extremes presents considerable variety; that is to say, such variety as may be represented by the combination of yellow, red, and black in different proportions. The colour of the hair varies with the climate of different parts of the world; it is blonde and flaxen or golden in the north, and dark or black in the tropics and in the south.* It is fair and yellow in infancy, and becomes deeper coloured as the child advances to maturity. Young hair, even in the adult, is almost colourless, like the locks of an infant, but attains by degrees the normal hue of the rest of the hairy covering of the individual. The hair not unfrequently undergoes changes of colour, likewise, in its relations to illness; it fades in brightness and it revives; it falls off and it returns of a hue different from the original; and these changes may be temporary or they may be permanent.

But the most common and important change which takes place in the colour of the hair is one which may be said to be normal in its relations to advanced age, namely, absence of colour (achroma),

* According to some recent statistics made in Prussia, and obtained from a total of 4,127,766 persons, principally children under fourteen years of age, the hair was found to be blonde in the ratio of 72 per cent., brown in 26 per cent., and black in 1.21 per cent. The brunette complexion averaged 5.63 per cent. In Bavaria, fair hair was represented by 54 per cent., brown by 41 per cent., and black by 5 per cent.; while the brunette complexion occurred in 15 per cent. Of Jewish children, one-third were fair.

or whiteness ; greyness, hoariness, the poliothrix of the Greeks ; the canities of the Latins. It is as natural for the hair to be white or hoary in old age, as it is to be brown, or chestnut, or black in youth, and the whiteness of the head manifests an especial adaptation to the severer character of the lineaments of age ; it mellows the coarseness and ruddiness of the skin ; it tones the harsher outlines of the features, and it subdues the wrinkles which time and care may have deeply furrowed ; in fact, age without hoary locks is fairly out of harmony with itself. An intelligent appreciation of the charm of white hair, as a beautifier of the complexion and features, no doubt suggested to our ancestors the use of hair-powder, and the splendour of its effect can hardly be gainsayed.

In truth, it is not the greyness and hoariness of age to which I have now to call attention, but to the accidental occurrence of this feature of age at a younger period of life. White hair is sometimes congenital in its origin, and in that case usually makes its appearance among children, in patches of different dimensions. Generally these patches are permanent for the rest of life, but occasionally, as though nature had grown tired of her freak, it grows again of a colour similar to that of the rest of the head.

We have here on the table before us (No. 537) a lock of party-coloured hair, white towards the roots, and brown for the rest of its extent. The white patch extended around the head in the form of a horse-shoe, and constituted a narrow band, the rest of the hair being brown. The case fell under my own observation in a young lady, seven years of age, and in the enjoyment of good health. It is a case evidently not of congenital origin, but simply accidental, and the change of colour commenced only three months before she came under my notice.

The preparation (No. 538) is probably of a similar kind, but of more prolonged duration, as the altered lock is white from end to end. It is entwined with

a lock of brown hair, apparently representing the normal colour of the rest of the hair. These specimens were found in the museum, and have no history connected with them.

Congenital canities and likewise accidental canities, when they occur in tufts and patches of divers extent, are sufficiently rare to be regarded as curious, and the more so when they are independent of any alteration of pigment of the skin. A more common form of canities is that which is due to a failure of health, it may be of the skin alone and therefore local; but the result is the same, white hairs in various numbers shoot up amongst the rest of the hair, and this at an age when they must be considered abnormal, appearing even in children under puberty. When this gradual interpolation of white hairs amongst those of the normal colour takes place, we then have the change which gradually leads on to permanent greyness and hoariness. It also occurs in many instances much earlier than seems warranted by age.

Another form of canities is that which is consequent on a previously existing baldness, when, after complete canities lasting for a considerable period, the hair slowly resumes its growth.

Such an example is shown in the preparation No. 539, which exhibits two locks of hair taken from the head of the same lady at distant intervals of time. Her first trial of health was that of losing the hair totally; at the expiration of two or three years it grew again, and for several subsequent years was perfectly white; afterwards a more healthy change took place, and it returned of its original colour.

The morbid anatomy of white hair teaches us that hair may be deficient in pigment without losing its normal texture; secondly, that besides loss of colour, its fibres and cells may be dotted with particles of calcareous matter, representing the lost pigment; thirdly, that the absence of colour may be

due to the intrusion of minute globules of air which permeate every part of the tissue of the hair and conceal the pigment from view; and, fourthly, that besides absence of pigment, the hair may become horny and rigid, and separate itself from the healthy hair. These differences in the anatomical constitution of the hair serve to explain the known physical properties which it exhibits. White hair is sometimes transparent and silvery, the silver locks of the poet; sometimes dull and opaque; sometimes pliant and smooth; sometimes stiff and rigid, and either straight or twisted. In a case of *delirium tremens*, under the treatment of Dr. Landois, of Greifswalde, and reported in Virchow's 'Archiv' for April, 1866, it was observed that the white hairs on the patient's head increased in number from day to day. Examination with the microscope showed that in these cases the whiteness was due to the infiltration of a gaseous fluid through the tissue of the hair. It will be remembered that the medulla pili always contains a variable quantity of air in its normal state, but, in the case to which I am referring, the air is not confined to the medulla but is diffused in minute globules through the whole substance of the hair.

CAUSE.—If we turn our attention to the essential cause of canities, we are led to the conclusion that that cause must be an error of nutrition, in other words, a defect of nutritive force. This must obviously be the case where canities is congenital; also where it is puerile or appears before the period warranted by age; likewise where it appears upon a spot which has been previously denuded of its hair by madesis, or where it shows itself upon a cicatrix. The nutritive power of the skin may be insufficient to produce the normal pigmentary matter, or it may be degenerative in its action, substituting calcareous matter or rigid horn for the normal tissue; or it may generate a gaseous fluid in the hair in place of the normal constituents. It is to this latter process

that we must ascribe the sudden conversion of the hair from dark to white in a brief period of time, of which there are so many undoubted cases on record. One such case fell under my own notice, and has been duly reported. Other cases are historical, such as that of Sir Thomas More, Henry of Navarre, Ludwig of Bavaria, Mary Queen of Scots, Marie Antoinette, the prisoner of Chillon, John Libeny, and many others. Of the latter, who was convicted of an attempt to assassinate the Emperor Francis Joseph, of Austria, the 'Times' correspondent observes, "his hair, which was black, had become nearly snow-white in the forty-eight hours preceding his execution; it hung wildly about his head; his eyes seemed to be starting from their sockets, and his whole frame was convulsed."

The mechanism of sudden blanching of the hair is illustrated in a very interesting manner by the preparations numbered 535 and 536, which, in the Dermatological Catalogue, are described as follows:—

TRICHODYSCHROIA.—535.—Error of colour of the hair. Example of a remarkable kind of discolouration, giving rise to a striped or banded or speckled hair. Every hair presents a succession of brown and white markings, or, in other words, is alternately brown and white throughout its entire extent. The brown segment is double the length of the white, the two together measuring one-third of a line, a length probably equivalent to the growth of twenty-four hours. Every hair of the head, in a lad seven years of age, was similarly discoloured, the change in appearance of the hair having no connection with disorder of health, and having been first perceived at the age of four. On examination with the microscope, the white portion is found to be due to the accumulation of minute air-globules in the texture of the hair, and not to any real alteration of

colour. White hairs developed during an attack of delirium tremens have likewise been found to owe their whiteness to the sudden production of minute air-bubbles within the hair, which veil the pigment from view. No. 536 is a lock of hair from the same patient, put up in spirits of wine.

This curious case formed the subject of a paper which I presented to the Royal Society, and was published in its Proceedings in 1867. The case, however, is not unique:—Mr. Savory informs me that a similar preparation has, for several years, been preserved in the Museum of St. Bartholomew's Hospital, but without any history of the individual from whom it was taken. I have some recollection of another similar instance which was described a few years back by the physician of one of the towns of Prussia bordering on the Baltic. The present case illustrates very clearly the rapidity of production of the gaseous fluid, its periodical occurrence, and its complete efficiency as a means of concealing the proper colour of the hair.

With such evidence before us as the foregoing, we may find an easy explanation of the variableness of the appearance of the hair from time to time, in relation with seasons and in connection with the state of the health. One of my friends notices that his hair becomes grey in winter, but recovers its colour in summer; and Sir John Forbes used to mention that, having been grey for a long time, his hair became suddenly blanched, and so continued for a year; when he gradually returned to his original greyness.

The influence of remote causes, tending to invalidate the nutritive functions of the skin, is peculiarly manifest in the instance of neuralgia, of which the following case may be taken as an extreme although characteristic example. A young lady, aged 26, consulted me in January, 1874, for a patch of white hair, situated over the upper part of

the frontal bone ; she had observed it for eighteen months. The rest of the hair was black and scanty, and the integument of the scalp pale.

She was likewise the subject of intense neuralgic headaches which recurred periodically ; at first monthly, but latterly, weekly. She was delicate in appearance, somewhat thin, her face especially so, and her skin and conjunctivæ pale. There was also a swarthiness of the skin of the face which contrasted with that of the rest of the body, and a deep brown pigmentary discolouration of the eyelids, especially the inferior.

These obvious appearances on the face, the general pallor, the suffusion with a swarthy tint, the porcelain whiteness of the conjunctiva, and the deep brown pigmentation of the eyelids, led me to inquire into the history of her uterine function. For two years she had suffered severe pains at the menstrual period, not limited to the uterine zone, but more or less general, and recently associated with the intense headaches already mentioned. Up to that period, menstruation had been utterly painless. And, with the painful menstruation there had likewise occurred an excess in the amount of the discharge. She likewise remarked that she was extremely hysterical at those periods.

Having arrived at a date when the symptoms of disorder of constitution had first set in in this young lady's case, and which had presented themselves in the form of dysmenorrhœa, next as neuralgic menorrhagia, and subsequently as hebdomadal neuralgia of the scalp, I proceeded to inquire further into her medical history, and obtained the following details, representing the predisposing cause of her present symptoms, including the poliosis or blanched hair.

Two years previously she spent five months in Italy and the South of France ; three of the latter months being devoted to the nursing of an invalid

sister through an attack of Roman fever. During one month of this period she never slept more than two hours consecutively, and had much cause for serious anxiety, not only on account of the gravity of her sister's illness, but likewise on that of the responsibility which devolved on herself as being her sole relative in a foreign land. Nevertheless she got through her duty without much apparent exhaustion, and returned to England in her usual health.

A few weeks after her return home, she experienced the first symptoms of her present state of illness; menstruation became painful and abundant; and these symptoms have since continued unrestrainedly with the addition of severe neuralgic pains in the scalp, and arrest of pigment formation in the cells of the roots of the hair.

This narrative marks the steps of the disordered state of her economy which I consider to have had its origin in nervous exhaustion and nerve-shock. The intervention of a few weeks of ordinary health is no valid objection to the mutual dependency of the successive phenomena which I have described. The effects of nervous exhaustion are not necessarily apparent at the time when the cause is in operation, but may be developed at a later period. Thus the fall of the hair consequent on parturition, and which may be presumed to be dependent on nervous exhaustion, is a not infrequent event; and the period at which it usually occurs, is from six to eight weeks after child-birth.

The nerve-prostration and consequent deranged nerve-nutrition in this case, I conceive, to have been the cause of the uterine pain and menorrhagia; and the transmission of nerve irritation from the uterine nerves to the fifth pair of nerves, the cause of the pains in the head, the arrest of pigment formation in the bulbs of the hair, and the deranged nutrition of the skin resulting in pigmentary degeneration, as manifested by the melasma of the

eyelids and face. The formation of hæmatoïdin may, very possibly, have taken place in the tissues of the uterus from escape of hæmoglobin through the blood-vessels; it would then, very naturally, be conveyed by the lymphatics into the stream of the circulation, and in consequence of the deranged nutrition of those parts of the skin which are under the control of the fifth pair of nerves, it would there become absorbed and appropriated by the cells of the rete mucosum; while the absence of pigment in the roots of the hair might equally be attributable to nerve irritation and derangement of nutrition.

In addition to these general causes we have further to note the perverted nutrition of the skin which accompanies leucoderma, as well as the exhausted nutritive energy of the cicatricial blotches of scleroderma, lupus erythematosus, and ordinary cicatrices.

DIAGNOSIS.—The main object of diagnosis in reference to blanching of the hair is to distinguish between curable and incurable cases, or if not absolutely incurable, such as must be left to the operation of time and ordinary attention alone. We must learn to detect the differences between the horny hair of age and exhausted power, and the more succulent hair of youth, inasmuch as the former is liable to intrude among the latter; between hair which is white or pale only because it is young, and hair which is colourless from the total abrogation of the pigment function of the skin. Moreover an important element of diagnosis must be the age and sex, together with the constitutional health and strength of the patient.

PROGNOSIS.—Similar considerations will guide our opinion as to the prospects of the restoration of the hair to its natural colour. When we see the signs of age showing themselves accidentally in youth; when we observe that hair, like the rest of the organisation, changes in its constitution, that it

varies from day to day and from year to year under the influence of circumstances favourable and unfavourable; when we perceive the hoary head of several years ago, now presenting an iron grey, we are warranted in the hope that, other conditions favouring, we may predict a satisfactory issue for our treatment. The mistake would be to expect these changes, which must depend on a gradual alteration in the whole constitution, to occur rapidly, or to attempt to fix a date for their completion. A case in support of my present argument is the incident which has happened more than once, and of which numerous examples have been recorded, namely, the restoration of the juvenile colour of the hair in extreme old age.

TREATMENT.—If we recognise the canities or blanching of the hair as an aberration of function due to a defect of the powers of the skin, and possibly of the constitution, as we are bound to do, the indication for treatment differs in no respect from that which it is our custom to adopt in other diseases—we must strengthen the individual and we must strengthen the part. Our operations for strengthening the individual will vary with the age of the person; in general terms we must regulate function and give tone to the organisation. In youth we might content ourselves with tonics alone, among which, the nutritive tonics must especially be selected; a tonic regimen, and above all a nutritive and invigorating diet. In the adult, and even in old age, there may be other preliminary conditions to be fulfilled, but the building up of the powers of the constitution must follow as a matter of course.

The pharmaceutical and prophylactic treatment should be the same as that already laid down for baldness; and the local treatment should be in many respects identical, the same stimulating lotion and liniment, and the same stimulating inunction. But we are frequently, also, called upon to advise

on another point, namely, the means of concealing the whiteness, the staining or dyeing of the hair, and to that matter we must likewise give our attention, as the use of chemical means without medical supervision might possibly involve injury to the health.

There are certain solutions which are used as simple stains to the hair, and are temporary in their effect; substances which can be washed off whenever it may be thought desirable; and others which are actual dyes and permanent on those parts to which they are applied. Among the former of these may be mentioned a weak solution of permanganate of potash, a lotion holding in suspension sulphur and acetate of lead, or the so-called *eau des Fées*, consisting of the hyposulphites of lead and soda; whereas the latter are represented by sulphurets of various metals, especially silver, the pyrogallate of iron, and ferro-cyanide of copper. The hair, as is well known, contains sulphur, and a solution of lead brought into contact with sulphur produces a sulphuret of lead which is black in colour. Sulphur and acetate of lead in suspension and solution in water supply both the elements necessary for artificial coloration of the hair, and therefore constitute a form of lotion which is very simple and has become very popular; it is sold under a variety of titles, and each vendor gives it a name of his own. All these lotions are easy of application, requiring merely to be brushed among the hair.

Actual dyeing of the hair is a more elaborate process; the hair must, in the first place, be washed with soap to get rid of grease which would otherwise interfere with the absorption of the fluid by the hairy tissue; secondly, the hair being dried, the metallic solution is to be employed and left to soak into the hair; and thirdly, the mordant fluid is to be brushed upon the part with a view to bring it in contact with every individual hair. If this opera-

tion sufficed for a considerable period, all would be well ; but as we know that the hair grows quickly, the newly grown part exhibits its original whiteness, and another dyeing soon becomes necessary. The tone of colour produced by the first application may have been perfect, leaving nothing to be desired, but the white roots of the hair cannot be reached without a fresh colouring being diffused over the whole, and then the evil becomes apparent ; a succession of coats of colour renders the hair more intensely black than nature herself could have accomplished, and the harmony of the features of the individual is disturbed ; the mellowing of the lineaments of the countenance, which I have attributed to white hair, is reversed by the depth of the blackness, and the features are rendered harsh and severe. The theory that an appearance of youth is maintained by the colour of the hair is not consistent with fact, and there is always the danger that the hair may appear youthful, while the features themselves are expressive of old age.

Society is generally intolerant of the practice of dyeing the hair, and there prevails an universal repugnance to the habit, even amongst those who adopt it themselves. Thunders of ridicule are directed against its votaries, no less than threatenings of danger to the health and constitution ; but to be just in our vituperations, we cannot reasonably allege the possibility of any serious evils. Lead, to which are imputed the most dangerous of the qualities of hair-dyes, enters into the composition of several of our cooling and astringent and sedative lotions, and even injections, and although undoubtedly some cases are on record of damage resulting from its internal and excessive use, Goulard's lotion is commonly received among us as one of the most harmless of our remedies. Perhaps a distinction may be drawn between its therapeutical and its cosmetical use, but it is difficult to distinguish the difference.

It is fair, however, to state that one of our journals reports that "there died at Iowa, Dr. Witherwax, from the effects of hair-dye containing lead." He had employed the dye to his head and whiskers for four years, and during that period experienced many reminders in the shape of lead colic. Two medical men detected lead in his liver and kidneys on analysis. No further search would appear to have been prosecuted elsewhere, namely, in the direction of his drinking water. I only remember two instances in which complaint was made against a lead lotion used for the purpose of colouring the hair, although several have been mentioned to me from time to time. One was that of a country gentleman in whom it produced vertigo and faintness; the other came before me a few weeks back in a young man who insisted on the fact in opposition to the expression of my doubt as to the possibility of occurrence. He was a person of evident excitable nervous susceptibilities: and both cases may possibly be considered as examples of idiosyncrasy.

ABNORMAL COLOUR OF THE HAIR.

Aberration of pigmentation of the hair other than white is illustrated in a very sensible manner in the preparation numbered 540, which is a lock of hair of a deep black colour taken from a young woman suffering under Addison's disease, the normal colour of her hair having been brown. She was under the care of Dr. Greenhow, whose careful researches into the pathology of that remarkable disease are known to all present; and I owe my thanks to him for the specimen.

In No. 308 we have another example of the development of a black pigment in the hair, in this case in association with the dyscrasia of syphilis. I have named it in the catalogue, syphiloma of the hair or tricho-syphilis. "The hairs normally of a

red colour were swollen from point to point, presenting a varicose appearance, the varicose portions being black in colour and brittle, sometimes breaking through in the course of combing and sometimes splitting longitudinally. Under the microscope the hair was found to consist of medulla and cuticle, the fibrous layer being absent, or so far attenuated as to be scarcely appreciable. The actual pathological state of the diseased portions of the hair was an arrest of development at the cell-stage, an accumulation of pigment, and probably a hyperplasia of the cell-structure. The patient, aged 26, lost his hair after syphilis, and when reproduced the hair of the beard presented the characters now described."

Green hair was observed by Dr. Clapton, a few years since, among the old hands employed in copper factories, in conjunction with green deposits on the teeth, green perspiration and green exudation from ulcers. These colourations he considered due not to deposits alone, but to absorption, assimilation, and elimination. Similar instances have been recorded by other observers.

ALTERED DIRECTION OF THE HAIR.

TRICHIASIS.—Aberration of direction or position of the hair would seem to be the pathological significance of the word "trichiasis;" and we are enabled to distinguish three forms of that affection. *First*, that which is due to obstruction of the hair in its attempt to escape from the follicle; *secondly*, that in which there is misdirection of the hair after its escape from the follicle; and *thirdly*, an entanglement and matting of the longer hairs as a consequence of neglect.

TRICHIASIS FOLLICULORUM, an affection noticed by Aristotle under the name of *malum pilare* and *morbus pilaris*, is a state of imprisonment of the hair within

its follicle, and suggested to the ancients the idea of the growth of hair under the skin. The integument in this disease is dry and imperfectly nourished, and the sebaceous secretion imperfectly formed and eliminated. The sebaceous and epithelial accumulation acts as a plug to the duct of the follicle, and obstructs the passage of the hair; but as this obstruction is not sufficient to prevent its growth, the hair becomes bent at its point and forced into a spiral or circular coil, which goes on progressively increasing in magnitude until it produces a small pimply prominence of a dark-greyish colour. If the pimple be scratched, the hair is set at liberty, more or less clogged with dry epithelial and sebaceous substance, and retaining its coiled figure. I have never seen this state of the hair on the head and face, where the hair is strong and the sebaceous secretion usually abundant; its more common seat being the trunk of the body, and especially the limbs, where the dry epithelial element prevails. It would seem not improbable that this affection, occurring around the nipple, has given rise to the term trichiasis as applied to a morbid state of the region of the nipples of females; but as this disorder is extremely rare, the lexicographic error may thereby have arisen of describing it as "a disease of the breasts of women giving suck, when they crack into very fine fissures." This definition, ascribed to Erotian, is not applicable to eczema, the only disease in which very fine fissures are likely to occur, and the comparison between fine fissures and hairs is not consistent with the usual accuracy of the ancients, and is somewhat unintelligible; whereas an obstruction to the free outgrowth of the hairs on the breasts of women is not at all improbable.

The preparation No. 532 is an example of the form of trichiasis which I am now describing. It exhibits a portion of cuticle from the thigh of an adult man; the little coils of hair at the aperture of

the follicles being distinctly visible. Sometimes there are two hairs, and the little prominence is of corresponding dimensions, and sometimes the extremity of the hairs is partially extricated and partially uncoiled, the bent figure of the hair retaining its permanence. These hairy papulae were scattered over the greater part of the lower limbs, and the effect was very remarkable.

This curious affection has not been passed over by Daniel Turner, although, as he declares, "it is so rare a distemper that in a man's lifetime it scarce calls for his assistance." For he observes with regard to it:—"Before we conclude our discourse of the hairs, there is a distemper in which they bear the chief concern in the disturbance, and taken notice of by Aristotle, under the name of *malum pilare* or *pilaris morbus*. Our Frenchmen, says Parey, call the same *cridores*, perhaps a *crinibus*, from hairs which are troublesome at such times. Wierus and Horstius treat of it under that of *dracunculi*, from the resemblance to the twining about of a little snake or adder, although some contend they are not the same, but differing distempers. The disease is rarely taken notice of among us; for myself, I must confess I have never seen it, nor do I find it mentioned, unless by a few of the ancients, who have sometimes affirmed there is life in them, and that they are a sort of *vermiculi* or worms."

"As to the *pilaris morbus* properly so called, it is said to arise from an over-weak expulsion of the hairs, which, being intended to be thrust forth of the skin, are stopped by the cuticle, and hindered from coming forth, whence lying under the skin, more especially about the backs of young infants, they prick the nervous filaments with their extremities like so many points of needles, disquieting them, and making the child exceeding restless, tumbling and tossing about, perpetually crying. They sometimes offer themselves at the surface of

the skin, raising a small tumour like a little abscess, and are to be taken out with a pair of nippers or forceps, being often found half an inch in length, and frequently longer, according to some. If I mistake not, Hildanus takes notice of one of his own children thus tormented, whom he at length freed by pulling them forth of the skin."

It must be admitted that our ancestor's account of this affection is somewhat confused; he does not appear to have seen it at all himself, but he curiously stumbles on the truth when he says that it arises "from an over-weak expulsion of the hairs;" and equally remarkable, he associates it with trichiasis ciliorum and plica polonica. For my own part, I have never seen it in children, a fact which may be attributable to the existing prevalence of soap and water; it is ordinarily met with in the aged and infirm, and especially in those who possess a constitutionally dry skin.

The *cause* of this form of trichiasis is defective nutrition, and consequently sluggish function of the skin; but this cause being removed, the distemper would necessarily cease.

Our *treatment*, therefore, should be to improve the skin constitutionally, by means of nutritive diet, tonics, and especially arsenic. Locally, the treatment should consist of abundant ablution with soap, conjoined with shampooing and friction. Such a state of the skin would be unable to resist the solvent and purifying process of the Turkish bath, and the ablution and bath may be followed up by inunction with some pleasant oily substance, such as the oleum theobromæ or vaseline.

TRICHIASIS CILIORM.—One of the most constant of the characters of the hair is its position of implantation in the integument, which, with very rare exceptions, is oblique to the plane of the surface of the skin. This law of growth is scarcely

ever departed from, but occasionally the oblique direction assumed by the hair may be attended with inconvenience. Such sometimes occurs on the edges of the eyelids; the cilia, instead of growing outwards as usual, are inclined inwards, and pressing against the sensitive conjunctiva give rise to inflammation of that membrane. But even in this case the false direction of the cilia is ordinarily determined by some morbid alteration of the eyelids themselves, possibly some foregone eczema or some cicatricial change which bends the edge of the eyelid into an unaccustomed position. At other times the mis-direction or inversion of the lashes is due to the presence of an inordinate number of cilia constituting a state of hairiness of the eyelids, and suggestive of the term trichiasis ciliorum, which was applied to this affection by Hippocrates. The same idea of a multitude of hairs in a multiple series is likewise expressed by the term phalangosis ciliorum, another Greek synonym of the same disorder. The remedy for this state of things is very simple, namely, the withdrawal of the misplaced hairs by means of the ciliary forceps.

TRICHIASIS COACTA (*Trichoma* ;* *Plica Polonica*). The term trichiasis, with the subjective definition coacta (packed together), has likewise been applied to a state of felting and clotting, or matting of the hair, which ordinarily results from neglect of proper attention. This state of the hair is sometimes observed after illness, attended with prolonged decubitus. To it must be ascribed the formation of the ball-like and inextricable mass which we see in plica polonica; and the clotted pendants so often met with in animals possessed of long hair or wool, such as the dog, the goat, and the sheep.

I have here some characteristic examples of

* *Τριχωμα*, a growth of hair, used by Alibert to distinguish plica, but not happy in its selection.

trichiasis coacta, as it occurs in the dog. In the thicker specimens, the hair is so closely felted together as to form a solid mass; while in the others it is tangled into elf-locks. The inconvenience of such a state of entanglement in the human being, unless where it is adopted as the mode or fashion of the country, may easily be imagined, and its only remedy would be shearing it away with the scissors.

Kaposi has done good service to medicine by pointing out what had long ago been suspected in this country, that there is no specific disease of the skin associated with plica polonica, and that the matting of the hair which goes by that name is simply the consequence of neglect; that in fact it may, and most frequently does, exist without any disorder of the skin whatever, while on the other hand it may be a complication of eczema or any other affection of the scalp; and he cites in particular the names of Beschorner, Hamburger, and Dietl as authors to whom we are indebted for much enlightenment on this subject. Plica, which can no longer be considered in the light of a disease, is, from the very quality of our social civilisation, unknown in England; but "for several centuries past has been regarded as a very mysterious disease, both by the laity and by physicians, in Gallicia, Posen, Poland, on the banks of the Weichsel and of the Dneiper, in the Ukraine, Lithuania, Bukowina, Podolia, Silesia, &c. It occurs in these places endemically. Sporadically, cases have been and are still met with in Hungary, Moldo-Wallachia, the South of Russia, and in the South Sea Islands. According to official returns, in the year 1842, in the Grand Duchy of Posen alone, plica polonica was met with in 2,400 males, and 2,867 females, making a total of 5,267."

We are naturally curious to know how it is possible for upwards of five thousand individuals, in a

district of moderate extent, to be affected with plica, in the absence of any disease of the scalp, and, moreover, when, of this number, it had existed in some for fifty or sixty years. This explanation Kaposi gives us in three words: "neglect of combing;" such neglect being sometimes referable to ignorance, sometimes to indolence, sometimes to dread of pain, where there is disease of the scalp, sometimes to vanity, on the presumption that a natural chignon is more ornamental than an artificial one, and sometimes to superstition, inspired by the belief that the irritation caused by the presence of the plica, and occasionally a colony of lice, is the natural safety-valve of more serious disease; just as, at the present day, we know that there are persons who dread being cured of a disgusting disease, lest a supposed impurity of the blood may be interfered with in its course of coming out, and in some mysterious manner be "*driven in.*"

Taking this view of the matter the causes of plica polonica may be summed up as follows: ignorance, indolence, vanity, and superstition. Nay, where nature has not beneficially supplied her "Posen" subjects with hair sufficient in quantity and length to weave itself into a respectable plica, we are told by Herzog that "they obtain a plica polonica made up of foreign hair." "We knew a lady," writes Kaposi, "who suffered from an enormous medullary cancer of both breasts and of their neighbouring parts. As her condition did not improve, at last she wore a small plica polonica on the crown of her head, and concealed it under a cap, and washed it daily with a decoction of sabadilla, so that no lice should infest it. She died in spite of and with her plica."

On this showing, the therapeutics of plica are summed up by Kaposi very briefly—"scissors and comb." The teacher Stieff, in Kaczkower-Rojewerdorf, he says "deserves prominent mention. He

has within ten years completely rooted out plica polonica from that locality solely by inculcating cleanliness. Within the Inowraclawer district, in the year 1837, there were one hundred polonicas found amongst the recruits; in the year 1842, only eight." The consolidated mass, as it presents itself in most of these cases, is not merely an accumulation of living and dead hair confusedly felted together, but is likewise pervaded with greasy sebaceous matter, and often with exudatory discharges from the skin. If we take the trouble to examine such a felted mass of hair more closely, says Kaposi, "we shall find the hair appears for the most part without any gloss, as if dusty. The mass emits a penetrating, disagreeable odour, which may be compared to that of fatty acids. . . . In by far the greater number of cases, there are swarms of pediculi capitis in plica polonica. There are also multitudes of nits which adhere to the hairs. Finally, if we separate the hair with the finger and expose the scalp to view, it is found to be moist and greasy to the touch, in places covered with epidermic scales, hence the dry and moist plica polonica of authors."

In its ornamental capacity plica has been described as existing among the natives of certain of the islands of the Pacific Ocean, among the Aborigines of Australia, among the Tasmanians, in Madagascar, and elsewhere. At a recent meeting of the Royal Geographical Society, in a paper read by the Rev. Dr. Mullens, on "Later Explorations in the Interior of Madagascar," the tribes of Ibara are spoken of as remarkable for their rude appearance, their uncouth speech, and the lumps into which their hair was rolled. The crisp curly hair of the negro, Hottentot, and some of the natives of the South Sea Islands, conduces very naturally to plica; and the small felted pellets called "peppercorns," seen at the end of the little curls of the Bosjeman,

may be regarded as so many pigmy plicas. This state of the hair is inconsistent with the use of the comb and brush; but its colonisation by pediculi is probably prevented by the use of grease, vegetable powders, and vegetable decoctions.

ALTERED STRUCTURE OF THE HAIR.

The hair in a state of health deserves to occupy a first place in respect of beauty and perfection of physical qualities, among the appendages of the integument. It is remarkable for its softness, its lustre, its ductility, its tenacity, and its elasticity; and these qualities are due to its intimate structure, to the perfect elaboration of its component parts, and to the strict relative proportion of its elementary constituents, that is to say, of its water, albumen, oil and pigment. Aberration from this standard of perfection must, on the other hand, be referred to imperfection of structure, or to imperfection in quantity and adjustment of its constituent materials.

Thus it is that instead of being soft, ductile, and elastic, the hair may be hard, rigid, and wiry; instead of being firm and tenacious, it may be fragile and brittle, as in *clastothrix* or *trichoclasia*, in *area*, and in *ringworm*; instead of the rich lustre which has gained for it a comparison with silk, it may be dry and faded; instead of being smooth and polished, it may be rough and scaly or split into fragments; and instead of presenting its proper standard of bulk, it may be shrunken and withered.

SCLEROTHRIX.—The Fathers of Medicine have shown their appreciation of the first of these aberrations of quality of the hair, by the employment of the term *sclerothrix*, literally, hard hair; hair which is stiff, wiry and rigid. Hair of this kind has the appearance of being more condensed, more horny than natural, and of containing less water

and oil. It is met with in cases where the hair refuses to grow to its usual length and remains stumpy and short. And, it is also seen not uncommonly, in connection with ringworm, occupying usually the back part of the head or, indeed, any other region where the ringworm is not actually present, and in this way showing that ringworm is associated with an organic change of structure of the hair in parts of the head which are ordinarily deemed free from the disease. So characteristic of the morbid state of the scalp appertaining to ringworm is this change in the quality of the hair to the sensation of touch, that I generally test the condition of the hair with my hand, as a part of my diagnosis of the presence of ringworm. In other words, the scalp, which is prone to develop ringworm, is likewise prone to produce abnormal and unhealthy hair.

TRICHOCLASIA, or clastothrix,* or fragilitas crinium, are terms which may be applied to a broken state of the hair, usually met with in the thick hair of the beard, moustachio, and whiskers, and only occasionally in the hair of the head. The act of breaking implies rigidity and inflexibility, as well as brittleness ; the breaks are occasioned by the act of combing and rubbing the hair ; and they are sometimes observed at short intervals along the whole length of the shaft of the hair. I have counted as many as ten or twelve on the cylinder of a hair scarcely two inches long ; and the idea is suggested of a hair intersected with a succession of joints. My attention was first drawn to this curious affection by a physician, who enclosed me some specimens of what he termed "jointed" hairs. These broken spots are visible to the naked eye as small white specks dispersed among the hair, and they are more striking in their appearance in dark

* *κλασις*, a breaking or fracture ; *κλαστος*, broken ; therefore a fractured or broken hair.

hair than in light. They are very vexatious to the patient, as they catch the eye very quickly, and convey the idea of scurf, and sometimes of a less harmless invasion of the hair.

When examined more closely, it is evident that the fibres of the broken part have become separated from each other longitudinally; and that only the fibres of the outer portion of the shaft are actually broken through, while the central fibres retain their continuity. These outer fibres being broken across, and at the same time separated from each other longitudinally, give the ruptured portion of the hair the appearance of a couple of brushes brought together by their ends; and it follows from this apposition that the ruptured portion has a greater circumference than the rest of the shaft, and that it presents so considerable a bulk to the eye when viewed in the midst of the healthy hair, such appearance being aggravated by its whiteness. We may imitate this state of the hair by breaking a tough stick partially through, bursting the bark and outer fibres of the wood, and leaving the central fibres comparatively uninjured.

I described this affection many years ago under the name of "fragilitas crinium," and it has likewise been independently observed and made the subject of a memoir by Dr. Beigel. The engraving No. 541 is from a drawing by Dr. Beigel, and gives a faithful delineation of the fracture of the hair, the brush-like and expanded ends of the broken portions being specially represented.

No. 542 is a slide on which are preserved several hairs exhibiting this peculiar form of injury to the hair. The specimens were taken from the beard.

No. 594 is a mount on which a considerable number of these fractured hairs, taken from different persons, are preserved. The characteristic appearance of the breaks is well seen, and some of the hairs will be observed to terminate in brush-like

ends; it may also be observed that there are no nodal swellings or nodosities on the shaft of the hairs.

In my work entitled 'Healthy Skin,' as far back as the third edition, 1849, and possibly the second, I have described (page 231) this broken state of the hair under the name of "fragilitas cranium." The same affection is made the subject of a paper, "Ueber Aufreibung und Berstender Haare," by Dr. Hermann Beigel in 1855. Dr. Beigel's observations were perfectly independent of mine; and no discredit can attach to him for not having made them earlier; nor should I have alluded to the subject now, but for the remarks of Kaposi, in the Sydenham Society's 'Translation' of Hebra, bearing date 1874, as follows:—"On the other hand, the alteration in the hairs, which Beigel *rightly considers he has described for the first time*, 'on swelling and bursting of the hairs,' does represent a substantive disease. I would suggest the name trichorhexis* nodosa for it. We find on the hairs of the beard and moustache exceedingly small, somewhat transparent or glistening, *conical swellings*."

I must venture also to take exception to the term "nodosa," applied by Kaposi to this affection; for although I have observed it during more than thirty years, I have never remarked any "nodular swellings," nor do I admit the existence of any enlargement or swelling of the hair as a precursor of its rupture. The break, as I have explained, is the mere consequence of brittleness of tissue, and the acting cause of the rupture the rude operation of the towel or comb. Kaposi, however, remarks:—"It is clear that the hairs, at first, become swollen into nodes at various parts of their course; that later, at the seat of the greatest curvature of one of these nodes, the cortical substance bursts, and, in consequence, tears apart ruggedly, and finally breaks

* *Pnξις*, a breaking or bursting, *i.e.*, a rupture of the hair.

off at the same place, so that the lower half of the ruptured cone then remains at the end of the hair: I cannot assign any cause for this swelling and splitting of the hair. Beigel is of opinion that gas is possibly developed in the medullary substance of the hair, which at first is itself swollen out and burst by it. . . . However, neither he nor I myself can speak more in detail concerning this supposed development of gas."

CAUSE and TREATMENT.—Now, if we set ourselves to inquire the *cause* and method of *treatment* of trichoclasia, we are bound to recognise an abnormal structure of the hair, brittle in structure both transversely and longitudinally, and rigid and unyielding, as leading it into danger of fracture. Our treatment, therefore, must be directed to the improvement of the nutrition and nutritive powers of the skin. I have noted the case of a young Scotch physician who was very much tormented with this disorder, and who had observed that when he left Scotland the hair acquired its natural appearance, but that as soon as he returned, the annoyance recurred. He was also made aware that his personal feeling of health and strength underwent a corresponding ebb and flow; that, in fact, he was better both in health and hair when away from Scotland, and worse in both respects on his return. The treatment in his case was, therefore, simple enough—namely, either to abandon a climate which was not congenial to his constitution, or to so far strengthen his constitutional health as to enable him to resist the depressing effects of the climate. In these cases I am in the habit of prescribing general tonics, an invigorating hygiene, and a generous and nutritive diet, and, subsequently, an arsenical remedy; and, locally, one of our mildly-stimulative mercurial ointments, such as that of the nitric oxide, or of the ammonio-chloride of mercury.

A faulty structure of hair is the leading character-

istic of common ringworm ; the hair is changed in appearance to a faded colour which has been aptly compared to tow or hemp, and has such a degree of brittleness that it breaks off close to the skin. The essence of the disease, according to my view of the case, is an arrest of the cell-structure of the hair at its cell stage ; the cells under those circumstances would be distended with semi-fluid contents ; they would undergo no conversion into fibres and horny plates ; when the hairs emerge from the follicles they would shrivel and dry up, and in proportion to the deficiency of fibre would become more or less brittle, and break off with greater or less ease. According to another theory the proper fibrous structure of the hair is supplanted by a vegetable parasite which renders the hair brittle, and it breaks off as in the previous case. To this latter hypothesis, I am, as is well known, strongly opposed.

TRICHOSYPHILIS.—It is ten years ago since I pointed out a change of structure of the hair which resulted from syphilis. It is well known that, in constitutional syphilis, the nutrition of the hair is arrested, and the hair falls out by its root. In the larger hairs of the beard, the papillæ being larger, the opportunity is given for the occurrence of a process which is similar to that of gummata or syphiloma in other tissues of the body. The bulb of the hair becomes enlarged ; its constituent cells are swollen ; an excess of pigment is deposited, and fibrillation is more or less completely suspended. As a consequence of this morbid process the hair is considerably enlarged and of a black colour at its exit from the follicle, and as the syphilitic orgasm subsides recovers its original bulk and appearance. Hence the diseased hairs look as if they were swollen like a varicose blood-vessel at the affected part ; and this swollen portion being deprived of

its horny fibres, and becoming dried by exposure, is rendered brittle, and is apt to split and break both longitudinally and transversely.

My audience will doubtless be acquainted with the drawings No. 308, which illustrate a paper on syphiloma of the hair, or trichosyphilis, read by me before the Medico-Chirurgical Society in 1867. The description of the drawings contained in the catalogue is as follows:—"The hairs, normally of a red colour, were swollen from point to point, presenting a varicose appearance, the varicose portions being black in colour and brittle, sometimes breaking through in the course of combing, and sometimes splitting longitudinally. Under the microscope the hair was found to consist of medulla and cuticle, the fibrous layer being absent, or so far attenuated as to be scarcely appreciable. The actual pathological state of the diseased portions of the hair was an arrest of development at the cell-stage, an accumulation of pigment, and probably a hyperplasia of the cell-structure. The patient, aged 26, lost the hair of his head after syphilis, whilst the hair of the beard presented the characters already described.

I have likewise to present to you a mount, No. 593, in which a number of these hairs are preserved. The diseased portions of the hair are recognisable by their blackness and by their split and fractured condition; but they are no longer swollen in the form of nodes as they were in their fresh state; the diseased portions are now shrunken, ribbed and flattened by evaporation.*

ATMOTHRIX.†—Amongst others of the alterations of structure observable in the hair, is that very curious

* These hairs were removed from the patient in April, 1864; and have consequently been kept in a dried state for thirteen years.

† *ατμος*, vapour; *θριξ*, a hair, *i.e.*, aeriferous hair.

one which we have already considered in relation with sudden canities, namely, the permeation of the substance of the hair with minute globules of vapour or air, a state to which the term *atmothrix* would seem fairly applicable. The air-globules do not affect the tenacity of the hair because the fibrous structure is uninjured, but they constitute a kind of gauze or curtain between the cuticle of the hair and its fibrous structure, which conceals the latter together with the pigment granules that form a part of its composition.

LEPOTHRIX.*—There is yet another alteration of structure of the hair which merits our attention and demands a few words of description, and that is, a loosening and partial detachment of the overlapping edges of the scales of which the cuticle of the hair is composed. This separation of the edges of the scales proceeds from the rupture of the transparent envelope of the hair, and, according to my observation, is chiefly met with in parts of the integument where the hair is surrounded with damp vapour or actual moisture, such, for example, as the axilla. In this situation I have found hairs which were fringed from end to end, but usually more on one side of the shaft than the other, and which truly merited the epithet *lepothrix*, or scaly hair. It is not difficult to comprehend how the constant subjection of the hair to a tepid acid fluid and its attrition with neighbouring hairs may soften the pellicle which covers the surface, and loosen and separate the edges of the scales. In this condition the hairs are favourable for the deposit and accumulation of the sediment of the secretions of the skin, and are, therefore, where cleanliness is neglected, not unfrequently clotted by fatty concretions, which sometimes glue the hairs together, and give rise to more or less entanglement and disorder.

* $\lambda\epsilon\pi\iota\varsigma$, a scale: $\theta\rho\iota\xi$, a hair, i.e., a scaly hair.

DISEASES OF THE GLANDULAR SYSTEM
OF THE SKIN.

If we contemplate the structure of the skin we shall scarcely find any part of its organisation of greater interest than its inflected portion; that which, in fact, gives occasion to an artificial division of the skin into a visible and an invisible, an apparent and a concealed portion. The surface of the apparent skin is everywhere perforated with minute openings, the apertures of the small sacs, formed by growth inwards from the exterior, which together constitute a system of considerable extent and importance—namely, that of the cutaneous follicles.

The structure of the follicles may be said to be identical with that of the exterior skin—that is to say, there is a foundation of fibrous tissue, becoming finer and more vascular towards the centre of the cylinder, and invested in the latter situation with a cellulated stratum which is analogous to the epidermis, but which from its internal position is termed epithelium, like the similar investment of the mucous membrane. Of these cutaneous follicles we recognise three kinds:—One which expands at its fundus and embraces a vascular papilla endowed with the special function of producing a hair; another, of lesser diameter but of greater length, which becomes convoluted at the extremity and constitutes a sweat-gland; and a third, which, in general, is an off-shoot from the neck of the hair-follicle, becomes more or less ramified and lobulated in its growth, and constitutes the sebaceous gland. Therefore the physiology of these follicles is evinced in the production of a hair, of sweat, and of sebum or sebaceous substance.

It is evident, from their position and relations to the substance of the derma, that every inflammation of the skin must involve the follicles to a greater or

less degree ; their vascular plexus becomes congested with blood and their blood-vessels dilated, producing redness and some slight swelling ; while, in the next place, the fluid portion of the blood transudes through the coats of the blood-vessels, causing infiltration, which still further increases the amount of the prominence.

In erythema we meet with frequent examples of hyperæmia of the follicles, superadded to the general blush, and constituting the punctated forms of the exanthem. This is especially evident in the eruptions accompanying exanthematous fevers ; for example, roseola, rubeola, scarlatina, and variola. And then, as a further development of these hyperæmic follicles, we have papulæ, as in eczema papulosum or lichenosum ; vesicles, in eczema vesiculosum, scabies, and chicken-pox ; pustules in eczema pustulosum, in scabies, in impetigo, and in small-pox ; and a deeper pustulation in ecthyma, followed in furunculus with gangrene and ulceration.

But it is not our present purpose to follow up the consequences of inflammation of the follicles as conjoined with general inflammation of the skin ; but to endeavour to isolate those affections which belong primarily and essentially to the follicles themselves. And these affections we may assemble together under four heads, for example : —1. Errors of development ; 2. Errors of function ; 3. Disorders arising from inflammation ; and 4. Disorders of nutrition.

I.—ERRORS OF DEVELOPMENT.

A follicle, it is well known, is developed by the growth inwards of a bud of the rete mucosum ; this growing bud pushes before it a portion of the true skin, which afterwards becomes the follicle. But it may, and sometimes does, happen that the bud is arrested in its onward growth, and retains permanently its bud-like figure ; in other words, the fol-

licle is aborted. In such a case the little mass of cells composing the bud is prevented from reaching any considerable dimensions in consequence of the pressure of the surrounding tissues; it becomes dense and hard, and shines through the superjacent cuticle like a minute white grain, or grit, or seed-pearl. These resemblances have, in fact, gained for it several synonyms; for example, *grutum*, or grits; *milium*, or millet-seed; and *pearly* tubercles.

This form of cutaneous affection is met with usually on the face, especially in young women, and the little white granules may be scattered more or less abundantly over the whole of the features, although in general they are most numerous around the eyes, and upon the cheeks and the temples. Their average bulk is about one line in diameter; the size, for example, of the head of a small pin, although occasionally they acquire somewhat larger dimensions. In position they are sometimes altogether beneath the level of the superficies of the cuticle, and sometimes slightly prominent. They are unattended with hyperæmia or inconvenience of any sort, with the exception of unsightliness of appearance. And although they are to be found on the face of many young persons, they are rarely so considerable in numbers as to attract particular attention, or induce a call for medical interference. When pursuing their ordinary course, the cuticle above them is gradually thinned by the daily process of exfoliation until they crop out on the surface; and then in the course of customary ablution they are washed and rubbed away. When this occurs they are not reproduced, and the prolongation of the affection must, therefore, be ascribed to a repetition of the original process of irregular growth.

The existence of such a state of the skin as that at present under consideration, is properly expressed by the definition which I have already assigned to it—namely, aberration of development or abortion

of the follicle, such aberration being ascribable to a weak and imperfect condition of the organ. And this view of the *cause* of the affection leads us to a rational method of treatment, which, to be complete, must be prophylactic as well as curative. The prophylaxis of the skin is to be effected by friction and ablution with soap, externally; and tonic doses of arsenic internally, with a wholesome and nutritive diet. This process is in reality likewise curative, as it induces an active removal of the cuticle superjacent to the granules, relieves them from pressure, and draws them to the surface, where they are afterwards rubbed away. That being effected, we have every right to expect that on the establishment of a more healthy condition of organ the feeble proliferation to which they are due will cease to recur. Occasionally, we may think it desirable to have recourse to some immediate process for the removal of certain of the larger milia, and the best means of effecting this is to puncture them in the centre with the point of a lancet-shaped needle, and press together the sides of the incision. When this is done with care the nucleus of the little mass will rise to the surface, and may then be swept away. And, when examined after its removal, it will be found to be a solid nodule of compact horny epidermic cells of considerable hardness and density. Another illustration of the nature of the nodule may be obtained by touching it with a strong solution of caustic potash: the solution acts primarily on the more recent and looser cells of the circumference of the nodule rendering them transparent, while the central, more condensed portion remains for a while as a minute white nucleus, until the solvent action of the caustic potash has overtaken it, and included it in the gelatinous destruction of the rest of the horny mass.

Besides the processes already named, I am in the habit of prescribing for the treatment of milium the

compound hypochloride of sulphur ointment, which should be well rubbed into the affected skin at bed-time, and washed away in the morning with soap.

SEROUS AND VESICULAR SACS; SEROUS CYSTS.—In the same category with follicles aborted in development we must place two somewhat anomalous cases, numbered 581 and 582, which we have treated as serous cysts developed in the skin, and giving rise to small tumours of the size of a split pea, in the one instance dispersed over the breast, and in the other congregated into a cluster of about the size of the palm of the hand, and situated on the hip. The cast 581 is described, for want of a better explanation of the fact, as the integument of the breast “studded with small papular prominences, consisting of closed or aborted follicles, distended with a fluid secretion.” The process of development of the small tumours was gradual and successive; that they were aqueous cysts embedded in the substance of the skin was quite obvious, but their dependence on aberration of development of the follicles is matter of inference rather than of proof.

The other case is described as a “plaster cast of the hip of a young gentleman, aged 18, exhibiting an encysted vesicular affection of the skin, the small prominences—isolated and clustered—being transparent cysts filled with serous fluid.” In this instance there seems every probability that the blotch of affected skin was congenitally malformed; under which supposition the sacs may have been vesicular cysts developed in the fibrous tissue of the integument, quite as likely as cysts resulting from imperforation of follicular sacs. The majority of the cysts were so fully distended as to be transparent, and all were superficially placed in the skin. While in the case of the integument of the breast, only two or three evinced any appearance of transparency.

As the subject of the blotch on the hip was a

young military officer, to whom any personal defect would be injurious, I obliterated the vesicles, after much trouble, by repeated applications of a saturated solution of potassa fusa.

SEROUS CYSTS, taking their origin in the follicles, are not unfrequently met with on the edges of the eyelids; they are more or less transparent, their integument being distended to extreme extenuation, and they sometimes attain the dimensions of an oval-shaped grape. They are usually solitary, but occasionally may be two or three in number on the same eyelid. One kind of serous cyst is characterised by its small size, globular figure, and remarkable transparency, and from some fancied resemblance to a hail-stone has been termed *grando*; another name for it, *chalazion*, has been suggested, from its mobility under the integument. These two characters become strikingly obvious when an attempt is made to puncture it; it is apt to slip aside during the operation, and it is found to resist penetration, in consequence of the extreme density of its cyst; these impediments cleared away, a small quantity of serous fluid escapes, and the cyst falls into a state of collapse. Puncture is the rational treatment in all cases of serous cyst where their removal is necessary or desirable.

II.—ERRORS OF FUNCTION.

It will not strike us as remarkable that an organ may be active or sluggish in its functions, and that these conditions may be considerably influenced by the health, more or less perfect, of the individual. A portion of the follicular system is destined for the *production* of a secretion which normally is pultaceous in consistence, but which, under the influence of aberration of function, may become too soft and diffuent on the one hand, or too dense and hard on the other. Another element of this function is the

expulsion of the secretion on the surface of the skin, and this again, consequent on the tone of the conducting organ, may be easy or difficult. It is hardly necessary to have recourse to an illustration in support of this fact, but to some minds it may throw light on the subject if we allude to that vast follicle of the body, the alimentary canal, which is strikingly liable, under the influence of disordered health, to looseness on the one hand and constipation on the other.

Now, a state of constipation of the follicles of the skin necessarily gives rise to detention of their secreta and excreta, and the sebaceous substance, composed of oily matter, broken cells and cell-membrane, together with the epithelium of horny exuviae, is apt to accumulate in the cylinder of the follicle. A little reflection will prove to us that the amount of retained matter will be modified by various subordinate conditions, such as: activity of secretion, density of secretion, nature of material—*e.g.*, sebaceous substance chiefly, or epithelial detrita, contractile power of follicle, both of its cylinder and of its excretory aperture, density of surrounding tissues, &c.

This state of detention of the secretion of a follicle makes itself known by the appearance of the detained substance at the excretory aperture; at this point it is seen as a round spot, ranging in size from a minute dot to a line or more in diameter, and from exposure to the atmosphere is more or less deeply black, and in proportion to its quantity more or less protruded, sometimes forming a slight conical whitish prominence, of which the black spot constitutes the centre. This is the affection termed *comedo*, and in the plural *comedones*. The comedo is found most numerously where the sebaceous follicles are abundant, as upon the nose, on the face, within the concha of the ear, in the sternal hollow of the chest, and on the back and shoulders. In

the concha of the ear, as well as on the nose, it is apt to attain its maximum limit of size. It is less frequent in those follicles occupied by a hair, as upon the scalp and limbs, but where the skin is neglected is also found in connection with them. However, the comedo of the limbs is more frequently an epithelial than a sebaceous comedo—that is to say, it is composed of epithelial substance rather than of sebaceous substance, in conformity with the normal functions of the follicles.

The contents of the comedo are very much influenced by two conditions, which greatly affect their destiny—namely, evaporation and compression. Their constituents very nearly approach to those of horn, hence, after long detention within the follicle, the material is apt to become hard and transparent, and essentially horny in its nature. It will be necessary to revert to this circumstance when we come to the consideration of horny growths produced by the skin. But in the meantime we may remark, that when a hardened comedo is forced out of the follicle by compression, it will be found to present an accurate cast of the cavity in which it was contained—namely, oblong in figure, enlarged in the middle, and conical at the extremity. On the other hand, in a succulent or moist skin the contents of the comedo are sufficiently soft to admit of being squeezed through the constricted aperture of the follicle while retaining a cylindrical form. In this case it will be observed that the dimensions of the cylinder are not those of the pouch of the follicle, but of the aperture through which they have been compressed. The substance so squeezed out is of course greater in length than the follicle itself; it is cylindrical in figure, a little contorted by the obliquity of the opening, and furnished at the extremity with a round black head. This appearance has been the origin of the various synonyms which have been assigned to it: one of

its commonest appellations is "black-head," another is "grub," from its maggot-like figure, while the word "comedo" has subjectively a similar signification, referring, in fact, to the devouring propensities of the grub.

The contents of a comedo are essentially excreted matter, although the oil which enters into the composition of sebaceous substance no doubt performs a secondary function in relation to the protection of the cuticle, and the maintenance of its pliancy, together with that of the hair. If we subject the contents of one of these follicles to a coarse examination, we shall find gland-cells and their contents, cell-membranes in various degrees of disintegration, epithelial cells in divers stages of development and completion, horn-cells and horny laminæ, and minute hairs, often considerable in number. I have myself counted as many as forty minute hairs in the substance of a comedo. But the most curious and interesting of the components of these comedones are the animalcules first discovered by Henle in the sebaceous follicles of the meatus auditorius, first described by Gustav Simon under the name of *acarus folliculorum*, subsequently by myself under the name of *entozoon folliculorum* and *steatozoon folliculorum*; and afterwards by Professor Owen under the name of *demodex folliculorum*.

These minute creatures are found most plentifully where their food is most abundant and palatable; they have been met with at all ages, from infancy to senility, and in man they give rise to no inconvenience by their presence. In a succulent, well-nourished skin, and in a soft mass of sebaceous substance, they are pretty constantly found; and under such circumstances are to be met with in every stage of development and growth:—ovum, embryonic forms, young animals with six legs and long abdomen, and perfect creatures with eight legs

and short abdomen ; they lie generally parallel with the hair which occupies the centre of the mass, their heads directed towards the fundus of the follicle ; not, as might at first sight be imagined, in the position into which they had crept through the aperture of the follicle, for, in fact, they are developed in the mass of the sebaceous substance, but because in that situation they are best placed for obtaining their food, while their central position within the sebaceous mass explains the absence of all symptoms of irritation from their presence.

To comprehend the *treatment* of comedones, it is necessary that we should have a clear idea of their *cause*. It is evident that, whether by suppression or inaction, excessive accumulation of the contents of the follicles must be due to feebleness of the organ, and, in a greater or less degree, to debility of the entire organism. Feebleness of the skin may be inherent or accidental, and in either case the same principle of treatment must be adopted—namely, pressure and friction of the skin and frequent ablution, with the use of an abundance of soap. Where the contents of the follicles are soft, pressure and ablution with soap are all that may be necessary ; but where impaction renders the liberation of the mass difficult, the latter must be pressed out by the fingers, or by means of tweezers flattened at the ends : but even this process will be much facilitated by kneading and friction, and, if at first difficult, will be rendered practicable by a continuance of the same means.

FOLLICULAR SACS AND SEBACEOUS TUMOURS.—But it may easily be conceived that an over-distended follicle will lose its power of contraction on its contents ; the secretions and excretions continue to accumulate ; their pressure may be carried even to the extent of obliterating the excretory aperture ; or, in the case of dilating that aperture

the density of the material may be such as to deprive it of the chance of escape. In a case such as this the tissues of the skin will yield to the distension in the ratio of their capabilities of resistance. The upper stratum of the derma being softer and more compressible than the deeper stratum, the follicular pouch will therefore enlarge horizontally; it will elevate the papillary layer slightly, and it may depress the fibrous corium beneath, but the least resistance, and consequently the most active increase of bulk, will be lateral, and this will continue until the distended pouch may be felt as a flattened tumour in the substance of the skin.

It must be noted, however, in these cases, that the pathological process is not simply one of distension alone, which would lead to thinning of the follicular pouch and ultimate rupture, but, like the expansion of the gravid uterus, is accompanied with nutritive growth; the wall of the distended pouch is thicker considerably than that of the normal follicle. But there are other changes consequent on the dilatation of the pouch that have likewise to be noted; both the hair papilla and the sebiparous gland are gradually obliterated, while the epithelial layer acquires increased thickness and density. Another consequence of this process will be, that the contents of the follicular pouches will become altered from their original constitution, the oily element of the sebaceous substance will cease to be produced while the epithelial element will be augmented, until, in course of time, a tumour will be formed, which, beginning by an accumulation of sebaceous substance, is ultimately composed of nothing else but epithelial scales compressed into concentric laminæ.

In the preparation numbered 545 of the Dermatological Collection are two portions of dissected skin, which show very clearly the position and structure of these follicular tumours and the nature of

their contents; in both, the aperture of the follicle is widely open so that the contents of the tumour might be reached with the probe; but its spontaneous escape must, obviously, have been impossible. It will also be seen that the contents are no longer a soft magma, but a solid and concentric stratification of epithelial laminæ.

ENCYSTED TUMOURS.—It is likewise easy to understand that if at an early period of growth of the follicular pouch the excretory aperture were entirely closed, to which the oblique position of the excretory duct would naturally contribute, the follicular pouch would then be converted into an imperforate sac; and this sac would be governed in figure by the elasticity or resistance of the tissues of the part of the skin in which it was developed. It would be flattened or more or less globular; or, accommodating itself to the surrounding tissues, it might even become lobulated. The open pouch is now converted into a closed cavity or cyst, and the case is one of *encysted tumour*.

Encysted tumours may occur in any part of the skin where follicles exist; they are sometimes seen hanging to the edges of the eyelids; but their common seat is one which is unusually rich in follicles, namely, the scalp. The factors therefore of an encysted tumour are: a cutaneous follicle and a sufficient thickness of elastic and compressible connective tissue to admit of its enlargement. This latter condition influences materially the size and figure of the tumours, for while they cannot be produced without such tissue, the existence of this tissue in abundance permits of their enlargement to a considerable size; as may be exemplified by the huge wens which are sometimes met with embedded in the skin or seated on its surface. Or by the preparation on the table numbered 2293, which is the cyst of one of these tumours removed

from the scalp, the tumour measuring four inches in diameter or one foot in circumference.

Occasionally they present considerable mobility and seem to roll under the finger, while, at other times, they are immovable, and firmly adherent to the adjacent tissues. Again, they are sometimes tense as if from the pressure of their contents, sometimes soft and flaccid and at other times dense and hard, either from the nature of their contents or in consequence of a horny transformation of their cyst. Moreover, as I have already mentioned, they occasionally present two or more lobes. These different conditions naturally tend to influence the facility or difficulty of operative treatment, and are therefore carefully observed and noted by the surgeon.

The contents of follicular pouches and follicular cysts, and likewise the thickness of their enveloping coats, are also subject to variety; a first and natural distinction of contents will be, between the pulaceous magma of sebaceous substance and the dense and laminated concretion of epithelial scales. In general, both exist together, the softer matter in the centre and the denser portion at the circumference. Then again, there may be present a considerable but variable quantity of water mingled with oil, crystals of fatty acids, floating detrita of epithelium and hairs; and instances are not wanting in which one or other of these constituents may predominate. In the preparations 159 and 160 of encysted tumours taken from the sheep, the cavity of the sac is full of hairs; the same may be observed in preparations 161, 2, and 3, taken from the cow and ox. In like manner hairs will be seen in the small cyst No. 158, removed from beneath the eyebrow of the human subject, the hairs growing from the parietes of the sac; and again in No. 2299, a cyst removed from the face, a considerable number of lanuginous hairs are mingled with the epithelial substance; while in certain cases there will be found evidence of de-

composition of the contents of the cyst. From the nature of their contents, certain of these encysted tumours have been termed "atheromatous," that is, containing a substance resembling "meal porridge;" while others, distended with a fluid like "honey," have received the name of "melicerous." The conversion of the outermost layer of the epithelial contents into a horny substance is also not a little remarkable; and in cases of long standing, the cyst, when torn from its bed in the skin, still retains its figure as if it were composed of cartilage, the shell being semi-opaque and of a bluish white colour. Softened epidermic matter, when macerated with heat and moisture, always gives forth a powerful and disagreeable odour, and this is remarkably manifested by the epithelial substance which has been for a long time detained in these cysts. The smell is not that of decomposing animal matter, but a concentration of the normal odour to a degree which is most disagreeable and offensive.

Encysted tumours are slow in their growth, often lasting for years without attracting attention; occasionally, when subjected to a less degree of tension by the surrounding tissues, they proceed more quickly. Those of quicker growth are ordinarily such as contain fluid; their epithelial cyst is thin; the superjacent layer of the derma is attenuated, and in rare cases gives way and permits of the evacuation of their contents; while, at a later period, the lesion heals, and the case terminates in ultimate cure. This, however, is the exception and not the rule, and the cure of encysted tumours usually calls for surgical interference.

Enough has been said to show that sebaceous and encysted tumours must be regarded as indicating feebleness and aberration of function of the skin, and as such they are occasionally observed to be hereditary, although, no doubt, they are generally of idiopathic origin. And they are also not unfre-

quently accompanied with other indications of a feeble or sluggish skin. In treating them with a view to cure, it is sufficient, in tumours with an open aperture, to evacuate their contents. A probe or small scoop may be inserted through the opening; if necessary the opening may be dilated, and then the contents will more easily be removed. After this operation, the surrounding tissues contract, the pouch shrinks upon itself, and nothing further remains to be done. Whilst, at other times, it may be found desirable to insert a drop or two of a strong solution of potassa fusa into the cavity to dissolve the epithelium of the pouch, and induce suppurative inflammation, which a poultice or water-dressing will speedily bring to a successful issue.

Encysted tumours, however, require that the cyst itself should be removed and taken away completely so that no portion of it be left behind, otherwise the remnant will act as an irritant and keep up a consecutive inflammation for some time. The operation which I myself prefer, is to pass a narrow bistoury through the base of the tumour, piercing it from one side to the other, and then cutting outwards to the surface so as to divide the upper hemisphere of the mass. In the next place the edge of the cyst should be seized with the forceps and pulled through the incision, the usually scanty connective tissue which retains it being divided by a few strokes of the knife. There is, ordinarily, but little haemorrhage, and the blood retained in the wound acts as a support to the superjacent skin, and subsequently as a cement to the edge of the incision. Whereas, the skin where it has been much distended, contracts by its own elasticity, and the wound is speedily reduced to very insignificant dimensions. In the course of this operation there is no time to take much note of the contents of the tumour; they may be dense, or soft, or fluid, but their odour is perceptible and disagreeable.

Then, in seizing the cyst, we find it one while tough and another while hard and brittle, perhaps breaking away on slight traction with the forceps. And, thirdly, the connective tissue may be scanty and elastic, rendering the extraction of the cyst easy, or it may be tough and adherent and productive of some difficulty. The treatment after the operation may be simply nothing, relying on the agglutinating property of the blood, or a light compress of lint. Should heat, and swelling, and throbbing occur a few hours after the operation, then water-dressing may be had recourse to.

Encysted tumours are regarded as harmless, and the operation for their removal is usually determined by their unsightliness or by the inconvenience of their bulk, or sometimes by the apprehension of greater evil on the part of the patient. They have been known to be inflamed from injury or pressure, and to become the starting-point of erysipelas, but are rarely productive of more serious consequences. An almost unique exception to this statement is recorded by the preparation before us, numbered 2293A, which is a portion of the calvarium of a girl, aged 17, perforated by one of these tumours; the operation for its removal having on that account proved fatal. But in this case it will be necessary to explain that the tumour began at the early age of two years, when the bones of the cranium were thin, and the pressure of the tumour must have contributed to the perforation by the prevention of ossification rather than by any subsequent absorption of bone, although, undoubtedly, both operations may have proceeded concurrently.

FOLLICULAR HORNS.—The contents of the cutaneous follicles, both epithelial and sebaceous, being in their nature related to horn, it consequently happens that when this substance is exposed to the atmosphere it dries up into a material which is perfectly

analogous to horn. Thus it is that when the epithelium of the follicles and the cell-substance of the sebaceous glands are not produced healthily, they are apt to be protruded through the aperture of the follicle and to desiccate into a kind of horny spine. These spines do not attain any considerable length, on account of the smallness of their calibre, and their liability to be broken; they are hard and transparent, and when softened with water are found to be composed of exuviated epithelium, retaining the cylindrical figure of the follicles, and cemented together with sebaceous substance, so that they possess, not only the hardness of horn, but likewise a concentrically-formed laminated texture. In a dry and ill-nourished, and perhaps neglected skin, I have many times met with horny spines, sometimes singly and sometimes in clusters, and more frequently on the limbs, as upon the forearms and legs, than elsewhere.

Such a state as I am now describing may exist quite independently of hyperæmia or inflammation, but is sometimes accompanied with congestion of the follicles, and sometimes with a low form of inflammation. In the Dermatological Collection of our museum we have a model (No. 544) of the disorder in question, which I have termed, in consequence of the presence of some hyperæmia, "*folliculitis*," and in allusion to the bristly prominence of the pigmy horns, "*setosa*." The description of this case in the catalogue runs as follows:—"Model of the forearm, showing a chronic form of folliculitis, accompanied with the accumulation of epithelial exuviae within the follicles. The morbid affection occupies the greater part of the surface of the forearm, in some parts resembling *cutis anserina*, without hyperæmia; in others being slightly hyperæmic and studded with black points, the discoloured exuvial product of the follicles, which latter projects beyond the level of the skin. A

large, almost circular patch, an inch and a-half in diameter, is seen a little above the wrist, and two or three patches of irregular figure higher up the arm."

But more common than these are the horny protrusions which are met with in association with *comedones*; and in consequence of the greater amount of the follicular substance and the greater diameter of the area of the follicles, the horny growth is larger in all its proportions. Nevertheless, the size of the horn must be governed by the productive activity of the follicle, and the size of the aperture through which the horny substance, in its soft state, is protruded. It is evident that this kind of growth may occur without giving rise to hyperæmia or inflammation; while, on the other hand, inflammation may at any time be excited by excessive tension and stretching of the aperture of the follicle, and especially by undue pressure or friction.

No. 546 is a water-colour drawing of a follicular tumour, of the kind we are now considering, which was developed on the upper part of the shoulder, and therefore in a situation where causes of injury were frequent. And, as a consequence of pressure and friction, inflammation, attended with much pain and suffering, was excited. The description of this case in the catalogue is as follows:—"A large follicular tumour in a state of inflammation. The epithelial contents of the follicular sac are protruded from its aperture, and have hardened by desiccation into a mass having the density of horn."

No. 547 is a plaster cast of the tumour, showing its size and prominence. Both the drawing and the cast exhibit the large opening through which the protrusion was making its way, and they likewise indicate the diameter of the horny mass occasioned by the desiccation of the epithelial and sebaceous

matter. This was a case evidently well suited for the application of the scoop, for although as hard as horn on the surface, the interior contents were soft and pulpy. With a little patience I was enabled to scoop out the whole of the matter contained in the sac, and the cast 548 exhibits with what results. The opening has now shrunk to very inconsiderable dimensions, the integument is collapsed and contracted, and has partly sunk into the hollow originally occupied by the tumour.

An excellent specimen of a follicular horn is exhibited in the preparations numbered 549 and 550. It "had been growing for thirty-two years, but had only attained sufficient bulk to become insufferable during the twelve months which preceded its removal. It was situated on the upper and front part of the thigh of a female servant, aged 57, and resembled in general contour the beak of a bird—its long diameter lying parallel with the skin. Its base was oval in figure, and in breadth was one inch and a-half, by one inch and a-quarter. It measured in length two inches and three-quarters, and in thickness two inches; its elevation above the surface was one inch and a-quarter, and its weight three-quarters of an ounce." The surface of the section displays the laminated texture which is common with these horny productions, and which is due to successive formation and continuous apposition of the newly-formed substance.

When viewed in their completely developed state, and by the side of the horny masses found protruding from the pouch of an encysted tumour, it might be assumed that these horns, produced upon the limbs, have a similar mode of origin; but this is not necessarily the fact. A case at present under my care throws new light on the manner of their formation.

A young lady, aged 18, has four or five superficial and slightly-raised blotches or tubercles of a dull

red colour scattered over the outer side of her thighs, especially the left; the tubercular prominences resemble blind boils, for which they might be mistaken, and they range in size from a quarter to half an inch in diameter. They made their appearance by red pimples, as small boils might be supposed to do, and after a few weeks became crusted in the centre, but without any preceding vesiculation or pustulation. On a closer examination, however, they presented two features dissimilar to boils or pustules; these were a broad crust covering the whole of the summit, and a prominent tumid border surrounding it. On removing the horny crust, it was evident that it resulted from the desiccation of a pulpy epidermic substance, and that the prominent border formed the rim of a shallow cup, in which this soft matter was secreted. Moreover, the floor of the cavity was not smooth, as would have been the case if it had been a sebaceous pouch; but rugged and papillated as though a cluster of follicles had participated in the morbid process. It was likewise obvious that the cavity could in nowise represent the pouch of a single follicle, but that, presuming several follicles to have combined in its formation, the interfollicular surface of the skin likewise participated in the morbid secreting process. The removal of the crust was unattended with any purulent discharge, while on pressing the sides of the cavity after its removal, a white tenacious substance oozed up through the fissures of the rugged base as well as from beneath the tumid border of the circumference; this matter being evidently a soft epidermic secretion, and the material which, by its desiccation, constituted the horny crust. I, therefore, came to the conclusion that this circumscribed shallow cavity was the bed of a cutaneous horn, and that the horn was not a mere accumulation and desiccation of sebaceous substance, but a product of chronic inflammation of the derma itself, beginning

in the follicles and accompanied with an excessive secretion of a soft and pulpy epidermic substance. This pathological view of the case will explain the breadth of base to which the horn, No. 549, growing from the thigh had attained, and its progressive increase in size, conditions not so easily accounted for by the mode of development of these horns on the head where large follicles give rise to prominent tumours and capacious cysts. It also serves to explain the slow progress of formation of these horns, as for example in the case before us, thirty-two years. In fact, even on the scalp, the gland-structure which was the original source of the accumulation, must necessarily be destroyed by the pressure of the contents of the cysts; while the cyst itself will become a mere diverticulum of the derma, and maintain in a closed cavity, and, therefore, under special conditions, the constant reproduction of cuticular substance.

It follows from this view of the constitution of cutaneous horns that, although sebaceous in their origin, they subsequently become purely epidermic or epithelial. This likewise accounts for the necessary slowness of their growth, inasmuch as that their increase must depend upon the slow deposition at their base of stratum upon stratum of newly-formed epithelium. And it also explains the more active growth of these formations when they occur on the scalp, where the glandular function is more energetic than elsewhere.

The preparation, No. 551, is a specimen of "a large follicular horn which grew from the scalp of an adult male, during a period of nine years. The horn looks as if it had been broken away from its attachment, and is twisted like a ram's horn. It measures in its dried state somewhat more than four inches and a-half in length, and two inches and three-quarters in its greatest circumference."

No. 552 is a horn of a conical figure, fibrous

structure, and considerable density. It measures nearly four inches in length, and has been for some time in the museum. There is no history attached to it, but it is presumed to be a human horn.

No. 553 is a portion of a follicular horn, presented to the museum by Sir William Fergusson; it grew from the scalp above the left ear, after the removal of a small sebaceous cyst. The operation had been performed five years before, and the horn had been snipped off from time to time with a cobbler's shears, a proof of the close adherence of its root.

In one preparation, No. 2300A from the general pathological series, we have a very remarkable specimen of follicular horn removed from the scalp of a woman.

And the preparation, 2300B, is equally remarkable as an example of horny growths from the lower lip of a man.

In the foregoing remarks on deranged function of the follicles of the skin, we have evidence of a deficiency of functional power—in other words, of vital power, which perhaps is rarely confined to the organ itself, but pervades to a greater or less degree the entire organism of the individual. Thus a normal product of the skin intended for regular and continuous excretion is detained, possibly in consequence of inspissation or desiccation from an absence of the proper proportion of fluids in the skin, or may be from insufficiency of expulsive force. Detained on the one hand, and continually reproduced on the other, it increases in bulk until normal expulsion is no longer possible. Then a new series of operations begin to be set up; the accumulated substance is solidified and hardened, and by mechanical pressure bursts its boundary, not to be expelled and got rid of, but to continue its growth, and possibly to give rise to consecutive derangements resulting from irritation and inflammation.

TREATMENT.—It is by a train of reasoning such as this that we are led to considerations as to the proper mode of treatment of these disorders. Thus, wherever it be practicable, the base of the horn should be softened, so that it may be broken off, and whatever may be left in the sac should likewise be softened and removed by the scoop. A water-dressing, even a poultice, will effect the softening process sufficiently, and when the surface of the pouch is exposed to the air, it will probably cease its unhealthy action. But should this not be the case, it may be necessary to stimulate the exposed sac by pencilling it with a solution of nitrate of silver, or one of potassa fusa. It has been the practice heretofore to remove these growths with the knife, and I can conceive cases in which this treatment might still be convenient, especially such as may be epithelial and persist in the renewal of the growth. But, in general, as the disorder is nothing more than functional, a patient application of the means I have now suggested will be successful. In the case of the young lady with incipient horny growths on the lower limbs, I felt the necessity of arresting as quickly as possible the chronic morbid action already commenced, by the application of a strong solution of potassa fusa, and I have no doubt of obtaining a satisfactory result.

III.—INFLAMMATION OF CUTANEOUS FOLLICLES.

FOLLICULITIS RUBRA.—Next to errors of development and errors of function, we come to the consideration of *inflammation* in relation to the follicle, taken as an independent constituent of the skin.

There is a distinct form of hyperæmic congestion or subacute inflammation of the follicles which is associated with a congenital malnutrition and feebleness of the skin. It is restricted to the follicles, and its identity is easily determined by the presence of

red puncta, more or less prominence of the aperture of the follicle, and a loaded state of its excretory duct, which is distended with epithelial exuviae. Its seat is also pathognomonic; the eyebrows, the maxillary region of the cheeks, and the back of the upper arms. And, from its self-evident pathological nature, it has seemed to me to be well expressed by the term *folliculitis rubra*.

Folliculitis rubra is met with in children and young persons, more particularly in those of the female sex, and occasionally in the adult. It is at once recognised by a suffused redness of the lower part of the forehead, the eyebrow, and side of the cheeks, and if from these parts we proceed to the back of the upper arms, we shall very probably find them bright red in colour and studded with minute papulæ closely packed together, looking like obliterated follicles, and communicating a sense of roughness to the hand when passed over them. The incentive to consult the medical man is, in general, the unsightliness of appearance of these bright red blotches, since to the eye the congestion appears to be of a very trivial character. But a closer examination detects the depth in the skin to which the hyperæmia extends; and the minute plugs of loosened epithelium afford evidence that the whole extent of the follicle is involved. Moreover, a still more important sign presents itself; the hairs growing from the follicles have, many of them, fallen out, and in the course of time the eyebrows will become entirely denuded, the outer half first, and then throughout the rest of their length.

Of course this picture may be more or less exactly delineated in its different details. There may be much or little redness; the skin may be scurfy or smooth, more or less punctated or diffused; but there is always before us the pathological fact that an important organ—the follicle—is involved throughout its entire extent; that the nutrition of

its epithelium is deranged, and that the hair is deprived of vitality doubtless as a consequence of atrophy of its papilla. Moreover, there cannot be a question but that a number of the follicles become impervious and obliterated.

CAUSE.—The *cause* of this state of the skin is, essentially, defect of nutritive power operating in a congenitally and sometimes hereditarily weak skin. I was much struck with the presence of this affection in a family of three or four young ladies, the daughters of a gentleman whom I knew to be the subject of ichthyosis, with which defect of the skin folliculitis rubra is closely allied. This affection, likewise, leads our thoughts to that state of the scalp of aged persons, which by the ancients was called xerasia capitis, and which is the proper type of the pityriasis of modern date. In xerasia capitis there is found subacute folliculitis, defective and deranged nutrition, exfoliation of epithelium, dryness and heat of the scalp, and a progressive tendency towards atrophy of the hair-papilla, followed by ejection of the hair.

Nevertheless, in folliculitis rubra, as constantly happens in local defective nutrition, the constitution of the patient may be fairly good, and it may be difficult to convince the uninstructed that any cause of debility can be present in the organism. Moreover, and likewise from the especial nature of the pathological affection, folliculitis rubra is very little amenable to treatment, and often resists our best endeavours to promote its cure. It appears to me that the indication proper in such a case is to increase the power of the patient by a generous and nutritious diet, tonic remedies, preparations of iron and phosphorus, and arsenic; and to alter the condition of the skin by means of moderate stimulants, such as the mercurial ointments and tar. I have found this treatment fairly successful; probably as much so as might be expected from the nature of

the cause. I lately, however, met with a lady suffering from this condition of the skin, who tells me that it did not commence with her until between the age of twenty and thirty, after a severe horse accident. At present the outer part of the eyebrows is completely denuded ; a red blush, smooth and glossy, occupies its place ; but the disease has been kept in check by means of a douche of steam spray which she uses every morning, and which she says keeps the skin of a proper colour for the rest of the day ; but if she fail to employ the douche the redness reappears as brightly as ever.

~~ACNE RIDING~~

ACNE OR ACMAI.

~~ACNE VULGARIS~~

I have taken folliculitis rubra as a typical example of inflammation of the cutaneous follicle, in consequence of its leading symptoms being hyperæmic redness, which, from its limitation to the coats of the follicle, is punctated ; deranged function in respect of growth and elimination of epithelium, slight and inconspicuous prominence also referable to the limited congestion ; exhaustion of nutrition of the papilla pili constituting atrophy of the producing organ of the hair, and ejection of the hair itself. And from this form of folliculitis we will now proceed to another of considerable interest both pathologically and socially ; one which, from its occurrence at puberty—the *acme* or starting-point of manhood and womanhood—was by our Greek fathers named *acmai*, but which we, at the present day, are content to call *acne*.

Acne is associated with puberty in relation to an especial function of that period of life, namely, the development of the permanent hair of the body ; and just as the analogous function of cutting the teeth is often attended with hyperæmia and swelling, so the determination of a large quantity of blood to the follicles of the skin is accompanied

with a similar state of disorder. If the tone and vigour of the skin be perfectly healthy, this function, like others, progresses through its ordinary stages tranquilly and without sign. But if the integument be weak and the impetus of the circulation powerful, or if the circulation of the follicle be feeble, then pathological changes, the natural accompaniment of inflammation, begin to make themselves apparent. There may, no doubt, be other contributive causes, but a feeble or sluggish skin must be considered as the first essential of acne. And these conditions are most commonly met with on the face, the sides of the neck, the front of the chest, and the shoulders and back.

With a sluggish skin, which implies torpid function, a common consequence, as affecting the follicles, is the accumulation of their sebaceous and epithelial products; hence, we very commonly find acne of the follicles accompanied with accumulation and impaction of their contents, and the inference has been drawn from the fact of their mutual presence, that there may exist a certain relation of cause and effect. But we have already been recognising the existence of comedones independently of hyperæmia or inflammation, while on the other hand acne may equally present itself without comedo. Nevertheless, it is necessary to admit that both may be found side by side with each other, and both may be equally the consequence of a feeble and indolent skin.

Acne may be defined as an inflammation of a cutaneous follicle attended with redness, more or less prominence, and commonly with superficial suppuration. These *acmai*, as the Greeks called them, are scattered more or less freely over the face, sides of the neck, front of the chest, and upon the shoulders and back; they are developed at or about puberty, and being successive, the affection may be prolonged for a number of years. The

typical form of the acne is a conical pimple of a red colour, with moderate redness of base, and punctated at the apex with a circular spot which marks the aperture of the follicle. This is the kind of eruption termed *acne vulgaris* or *coniformis*. Sometimes the prominence is less conspicuous, the leading character of the pimple being the black head of a comedo; this less-developed form of acne vulgaris has been designated *acne punctata*. Or, in a more active state, when acne vulgaris suppurates at the summit, we are introduced to another term, namely, *acne pustulosa*. More congestion with a broader area would be *acne tuberculosa*; and a chronic tubercle with condensation of its base *acne indurata*. Now, it is evident, that practically these differences of character of the eruption may all be included under the common and well-understood terms—acute and chronic, mild and severe,—and that we should recognise in the difference of form of the eruption not the manifestation of a distinct and substantive disease, but simply a diversity of its development in different constitutions.

In the Dermatological Collection, numbered 555, there is a water-colour study of the diverse forms of acne, “showing the figure of the papules and pustules and the colour of the eruption, with its maculæ and cicatrices.” Another drawing, No. 554, is a water-colour study of acne vulgaris of the whole of the back of a young man, 26 years old. The eruption commenced at the age of 17, somewhat later in life than usual, and continued uninterrupted; the state of the skin nine years later being shown in the drawing. The constitution of the patient was feeble, and the affection presented all the common and recognised forms of acne; thus in the drawing we see *comedones* with grey or black heads. Then there are small papulæ with black puncta in the centre of their summit, or *acne punctata*; next follow red, conical papulæ, some

with and some without pustular heads and with a more or less inflamed base, *acne coniformis*; then there are purplish indurated papulae or tubercles of considerable bulk and remarkable for their hardness and chronic character, *acne indurata*; and lastly, brown stains or maculæ, and pitted cicatrices of various extent and depth.

Nos. 557 and 558 are plaster casts of the breast and loins of a young man, showing the skin studded with acmai of various dimensions. While in No. 559 we have a plaster cast of the flank of a young woman, aged 25, in whom many of the pimples had degenerated into superficial abscesses.

To be exact, the definition of acne ought to be: —a folliculitis developed at puberty, consisting of a conical red pimple which either runs on to suppuration or degenerates into a chronic tubercle or abscess. But as every follicle of the body, at every age, is susceptible of inflammation, and as the inflammation must necessarily pursue in all, the same general pathological course, the error has arisen of calling almost every papular or pustular folliculitis, developed in an isolated form upon the skin, an acne. Thus it is that a folliculitis of adult life making its appearance on the face, is termed "acne rosacea;" another papular folliculitis which shows itself when the system is permeated with the iodide or bromide of potassium or when tar has been employed either internally or externally, has also received the names, respectively, of iodine acne, bromine acne, and tar acne.

PROGNOSIS.—If we were asked the question:—How an inflammation will behave in the skin? we might fairly reply:—Let us see the subject of the inflammation and test his powers of constitution, and we will then tell you whether the inflammation will subside at its initiatory stage or run on to its extremest limit, that of suppuration; whether it will be active and yield quickly to treatment, or

whether it will be sluggish and linger on for months or years. The progress of the inflammation is strictly under the control of constitutional laws, and these same laws will govern the treatment as well as the prognosis of the disease. Acne, in general, may be said to have a tendency to get well spontaneously, when the full development of the organism is accomplished; but as this development may be retarded by various circumstances, the help of the medical man is required to expedite the cure. Moreover, when neglected, and when those helps have not been obtained, it may last for an indefinite period. It is with acne as with many other derangements of health, namely, that when the strength of the individual is completely restored, the local inconvenience will quickly disappear. Chronic acne in a poor state of constitution and of the skin, is often accompanied with infiltration and induration of the cutaneous tissues. In the midst of this indurated tissue small abscesses are apt to form which often degenerate into collections of transparent yellow fluid. The abscesses are usually of the kind termed "cold abscess," and are indicated by a smooth prominence of the skin of an oval figure and dull red or purplish colour, and without any tendency to point; while their fluid contents may be detected by pressure with the finger. In course of time they would seem to be converted into secreting sacs, which sometimes burrow deeply into the indurated integument, and sometimes assume the appearance of sinuses. When punctured, these larger cysts will give exit to one or two drachms of a clear serum-like viscous fluid, which is apt to collect again as soon as the puncture heals up; so that it may be necessary to repeat the operation several times.

In cases of unusual severity the pustules of acne are apt to leave pits and cicatrices which are suggestive of the consequences of small-pox, and give rise to considerable deformity; and where the nutri-

tion of the derma is seriously deranged, ridges of fibrous tissue will sometimes grow up in the cicatrices, and constitute a false cheloid.

TREATMENT.—Acne being in its nature essentially sub-acute and chronic, and depending on defect of organic and nutritive power of the skin, requires for its therapeutic management a tonic or stimulant local treatment, together with a tonic and nutritive constitutional regimen. My own local treatment consists in friction combined with pressure and kneading of the skin, followed by inunction with the hypochloride of sulphur ointment. To effect this, the skin should be firmly wiped with a cloth, so as to break the heads of the pustules, bruise the papules and empty the follicles of their contents. This should be done at night. Then the ointment should be rubbed into the papules with moderate force; and in the morning the skin should be washed with a profusion of soap and cold water. As it is no part of the intention of the treatment to increase the pain and suffering of the patient, this little procedure should be performed with judgment; but in general, as it is left in the hands of the patient, it is not likely to be executed immoderately. It should be repeated every night, and kept up in the case of the pimples and tubercles until the whole have disappeared. That is to say, the application of the ointment should be limited as much as possible to the pimples and tubercles solely. Occasionally we may see reason, where the treatment appears to be too violent, to suspend it for a few days or longer; but the principle must be rigidly adhered to.

This strongly stimulating treatment will, no doubt, occasion some redness, with stiffness and soreness, in a sensitive skin; but in general the inconvenience is slight, while the benefit is considerable. Sometimes I relax the treatment for a week by substituting zinc ointment for the sulphur

ointment; but as soon as the skin will bear it, the latter should be resumed.

Young ladies will also frequently complain of the redness which remains on the skin in the morning after the saponaceous washing; and in truth, not without reason, for in general the patients have, heretofore, been wholly negligent of soap; and a severe soap friction succeeding an overnight sulphur friction is a not inconsiderable transition, and a severe penalty for their previous neglect. In these cases a lotion of lime-water with oxide of zinc, and calamine to give it the tint of the skin, will be found a great comfort, and will, at the same time, conceal the redness, which is the prime subject of complaint. This lotion is often found to be more cool and agreeable than the various skin powders, against which, however, there can be no objection, should they be preferred. But in the treatment of acne anything like half-measures will fail.

As I do not regard the impacted substance of a comedo as an essential cause of acne, I attach no importance to its removal. Where it is found to exist, it will necessarily be forced out of the follicle by the friction and pressure recommended for the treatment of the eruption. Or, in the case of pustular acne, the apex of the pustule may be pinched off with the forceps and the sides of the follicle squeezed, which will expel both the pus and the comedinous plug at the same time. And for the puncture of a serous or purulent sac I should prefer a flat needle to the lancet as inflicting a smaller wound, and as less likely to be seen when the incision is healed. Indeed I cannot too strongly enforce caution in the case of operations practised on the face; in view of the deformity which might possibly be the result. It is evident that a fluid will escape from one of these sacs as completely, and often more safely, through a small opening as through a large one, while the chance

of scar or deformity will be reduced to its minimum limit.

And, now, what shall we do *constitutionally* to improve the nutritive power of the general organisation as well as of the skin. There can be no question as to the necessity for a nutritive and generous diet:—meat in moderation, three times a day, and good sound beer for dinner and supper. Next, we may propose, according to the constitution of the patient:—cod-liver oil; iron; quinine; the phosphates of lime and iron; nitro-hydrochloric acid with a bitter infusion, and arsenic. In effecting the proper and healthy nutrition of the organism, no possible chance or means must be thrown away; although, on the other hand, it must be acknowledged that our pharmacopœia is limited, and it therefore becomes the more necessary that our remedies should be administered with tact. The special internal remedy in most of these cases is my ferro-arsenical mixture, containing three minims of arsenical solution to the drachm and administered at the end of the meal, three times a day. While for external use, my compound hypochloride of sulphur ointment is the paragon of a remedy.

GUTTA ROSEA OR ROSACEA.

The more nearly our nomenclature approaches to an objective character the more intelligible it will become to the student and worker in science and art. The fathers of medicine, like all ancient peoples, were remarkable for their poetical fancies, and one of these fancies was to name a disease according to the mere circumstance of its occurrence at a certain period of life. The pimples of acne came before them as an accompaniment of youth, and therefore they called them *acmai*; and no objection can be taken to the term *acmai* so long as it is restricted to the pimples of puberty or youth. But when, in course

of time, the original significance of the word is forgotten, and we find it employed as a generic term, and applied to every kind of pimple which possesses the shape and general appearance of the acne, then a certain amount of inconvenience must arise. Thus it is that we find enumerated in works on dermatology, besides the acne of youth, an acne of adult age, termed from its colour rosea or rosacea, together with iodine, bromine, and tar acne. That is to say, an eruption of *puberty* occurring in the *adult*, and in those who have been submitted to the remedial action of iodine, bromine, and tar; which, in fact, is clearly absurd. But we overcome this difficulty by the use of a strictly medical term—namely, the word folliculitis, or inflammation of a follicle, which is not likely to be misunderstood, and which calls the attention at once to the pathological nature of the disease.

In this sense acne vulgaris, an eruption of the *acme* of life, the flower of age or *flos ætatis* of the Latins, may be disposed of as an appendage of puberty, a folliculitis pubertatis; and if we glance at our Latin Dictionary we shall find the word “*pubertas*” explained as follows:—“Ripe age, of fourteen in men, and twelve in women.” This of itself will show that a term implying puberty is not the most desirable for an eruption such as that to which I am now about to draw attention, and which has been diversely called acne rosacea and gutta rosea.

Gutta rosea is essentially a folliculitis, developed on the face, and in particular on the cheeks, around the mouth, and upon the forehead immediately above the root of the nose; in fact, in the circumference of the apertures on the face of the alimentary canal, of whose morbid condition it may be said to be a reflex presentment. The anatomist notes with intelligent satisfaction the relation of the eruption to the cutaneous branches of the fifth pair

of nerves, and discovers a reason why the districts supplied by the infra-orbital nerve, the frontal nerve, and the inferior dental nerve are generally marked by a more active development of the eruption than elsewhere. The fifth nerve is obeying its treaty obligations with the pneumogastric nerve, and the eruption may be regarded as a fiery protest of the fifth pair of nerves against the sufferings endured by the eighth. It may possibly be asked,—Where is our typical acne now, a blossom of puberty, and calling upon us to bring all our knowledge of the necessities of puberty to bear upon the case? And if in some of its manifestations like, how otherwise unlike to the eruption which makes its appeal to our judgment and consideration in consequence of the maladministration of the digestive organs. It is no longer a question of simple building up like that of acne pubertatis, but one in which the assimilative organisation of the individual is essentially at fault.

Who has not felt, or been consulted by his patient anent, that obtrusive flush after dinner which fixes itself on the face, and betokens some fault of stomach, some error of digestive function. This flush is repeated day after day and month after month, until it becomes established in the face; and, with it, a new symptom arises—namely, the development of pimples. The pimples are the consequence of congestion of the cutaneous follicles, and pursue the ordinary course of inflammatory papulae, modified, more or less, by the constitution of the patient. That is to say, they may remain as dry pimples, or they may become pustular, and the pustules may be small and acuminated, or they may be large and hemispherical.

The inflammation of gutta rosea is often acute, or more frequently sub-acute, but always chronic; and without any tendency as occurs in acne vulgaris to spontaneous cure. In the latter affection the

skin will recover its healthy tone more or less quickly, as a consequence of normal growth and nutrition. Gutta rosea, on the other hand, is consequent upon a cause, mal-assimilation, which tends to progressive increase until the cause be removed. In its acute form there is a diffused hyperæmia of the skin, sometimes general and sometimes in blotches; the colour of the pimples is vividly red, and the pustules are small, but this acute form may at any time become chronic, when the colour of the eruption will be changed to a dull crimson, the pimples will enlarge to the size of small tubercles, the pustules will grow large and broad, and the integument become infiltrated and indurated.

In my first course of lectures, delivered in this College in 1870, I described gutta rosea as presenting four degrees of development—namely, erythematous, papulous, pustulous, and tuberculous; and I now repeat these terms as expressive, not of differences of nature of the eruption, but simply of degrees of manifestation, having reference to the severity of the cause and differences of constitution of the patient. The water-colour drawing, No. 560, is a study of an exaggerated form of gutta rosea as it presented itself in a woman, 40 years of age. It had been four years in existence, and is most severe in the centre of the forehead, on the cheeks, and beneath the angles of the mouth; the patch on the forehead runs down upon the bridge of the nose, and a broad band across the nose connects the larger blotches of the eruption of the cheeks. The temples, the eyelids, and the upper lip have escaped, but there is a considerable amount of eruption on the chin, which is blended at either side with the pustular blotches below the angles of the mouth. The pathological features of the disease are—the evident thickening and coarseness of the skin, the gaping follicles, purplish or dull roseate colour, numerous dilated venules, and large pustules. A

number of comedones and follicular papulæ are also found scattered in the intervals of the papulæ.

Gutta rosea is particularly influenced by circumstances of age, sex, and temperament, more perhaps than by the nature of the cause. In the first place it is more common in women than in men; it rarely shows itself before the age of twenty-five or thirty, and is more apt to be acute in proportion to the youth of the patient. In women between the age of forty and fifty it has a tendency to be sluggish in its progress, and the same is observed in men in whom a cluster of three or four dull red tubercles may be all that is present of the disease, but which may continue for years without change.

The subjective symptoms of gutta rosea are for the most part some degree of heat and itching, rarely smarting or pain; the most vexatious element of its presence being its appearance, which naturally, is highly objectionable. Unlike *acne vulgaris*, it is restricted to the face.

CAUSE.—The *cause* of gutta rosea is irritation of the mucous membrane of the stomach; and the eruption is generally associated with indigestion and mal-assimilation. And, as I have already observed, the irritation of the skin is the mere reflex of an irritation present in the gastric organ. Our inquiry must therefore necessarily extend further than the skin, or even than the stomach, in fact, to those causes which are capable of invalidating the powers of the digestive organs. In general terms it may be said that every cause which conduces to the weakening of the stomach is a cause of gutta rosea—for example, general nutritive debility, as shown by want of appetite for food; irregular meals; fasting; excessive abstinence; total abstinence; excess of food; excess of alcohol; and, especially, without excess in quantity, the substitution of alcoholic drinks for solid food.

Young mothers are subject to gutta rosea after child-birth if their powers of constitution, and particularly of digestion, have suffered from the effects of parturition. It occurs frequently among women at the change of life. It is common amongst those who weaken their stomach and its functions by total abstinence, as well as amongst those who wander to the other extreme, and it is often especially virulent and obstinate in persons whose nervous system has been rendered irritable by worry and mental anxiety. Lastly, in its more sluggish forms, particularly in men, it may be due to that kind of mal-assimilation which, under other circumstances, would give rise to gout and rheumatism. It is evident, therefore, that while gastric debility lies at its root, gastric debility may be occasioned by the most opposite extremes, illustrating the old fable of Phaëton—"In medio tutissimus ibis."

DIAGNOSIS.—The *diagnosis* of gutta rosea is by no means difficult; its only congener being acne vulgaris, and the absence of eczema in other parts of the body is a negative proof of its special nature. If the patient be over twenty, and the eruption is not a continuation of an eruption of puberty, it may be proclaimed at once as one of gutta rosea.

PROGNOSIS.—The *prognosis* of the disease is equally distinct; it is curable, often quickly, but necessitates medical treatment. It rarely gets well spontaneously, and its appropriate treatment is a remedy against other morbid conditions of the system as well as itself. Unlike acne vulgaris, it rarely leaves any permanent marks or cicatrices on the skin.

TREATMENT.—And now we come to the interesting question of treatment, which should march hand-in-hand with the pathology and cause of the disease. In acne vulgaris I commenced with the consideration of the local treatment as being, for the moment, the paramount evil. But in gutta

rosea we shall make no progress towards cure until the digestive organs are set in order; and, that being provided for, we may next proceed to the local treatment. In general there exist more or less constipation, a sluggish action of the liver, and a general want of tone of the alimentary canal. This condition is best relieved by small doses of sulphate of magnesia, backed up with quinine, iron, and a bitter infusion. In certain cases no other internal remedy will be requisite. Sometimes we are told by our patients that the bowels are too active, and this we may take as a sign that nature is making an effort in the right direction, but still requires the aid of her handmaiden, art. But we must proceed with caution; we should not seek to purge and debilitate, but simply to regulate and give strength, and after a week of this treatment our patient will often tell us that she feels lighter and stronger than she has felt for some time before. We should have no hesitation where there is constipation to endeavour to help nature in the performance of a function which of herself she is clearly unable to command. Sometimes, in lieu of the aperient tonic just suggested, we may prefer nitro-hydrochloric acid with a bitter, or may deem the citrate of iron and quinine needful; but these variations apply only to exceptional cases. Of course we should not think of wasting our arsenical remedy, the sheet-anchor of acne vulgaris, upon gutta rosea, which under no circumstances is likely to require it. It is quite possible that other methods of treatment may be serviceable in this eruption, but it is essential that they should combine the aperient and the tonic principle, and that they should act with the least possible distress or discomfort to the patient, for in these cases we always find a substratum of debility. So that in laying down with emphasis the plan which I myself adopt, it is with a full conviction of its advantages, and after a long experience of its excellence.

Occasionally we meet with cases of gutta rosea of excessive obstinacy. I have in my mind the instance of a young lady of twenty-four years of age, which may be taken as the type of the kind to which I now refer. She had been worried mentally and physically for a number of years, was nervous and debilitated, and resisted all the treatment which had been ordered for her cure. I hoped that marriage would make a favourable change in her constitution, but that failed likewise. Accident, however, came to our aid. She moved into the country, and at the same time out of the reach of her London worries, and then she got completely well. Even medicine must sometimes be content to yield before the powers of nature.

And now let us look at the *local treatment* of gutta rosea, second, it is true, to constitutional treatment, but not less cogent in its influence. As might be anticipated, and as practice proves, all palliative applications are utterly useless. There is an irritability of tissue which must be conquered by a stimulant, and no stimulant will be found to answer the purpose so well as my compound hyperchloride of sulphur ointment. In this respect acne vulgaris and gutta rosea agree; both require a tonic or stimulating operation on the skin, and in the instance of the latter the result is often remarkable. But it must be remembered that while, nay, even before the stimulant comes into operation at one extremity of the nervous chain, the other extremity is being relieved by a judicious internal treatment. The sulphur ointment should be rubbed into the eruption at night, and washed off in the morning with soap, and, after the morning ablution, the face should be dusted over with some absorbent and cooling powder, such as starch powder, or Fullers' earth, or the lotion of lime-water, containing oxide of zinc and calamine powder, may be used in the morning.

This treatment may sometimes be recommended in cases where, from the resentment of the skin against all local remedies, the face has been left to itself, even to the exclusion of necessary ablution. In such cases the remedy may prove somewhat powerful, but nevertheless it should be persisted in ; whilst it very frequently happens, under these circumstances, that the result is unusually favourable. Occasionally, however, it may be requisite, after the employment of the ointment for a few nights, to give the patient a rest by using it less frequently. Or it may be suspended for a week or more, and when resumed be applied only to the pimples or tubercles which chance to remain. But the treatment of these cases requires firm and resolute action on the part of the medical man.

MENTAGRA OR SYCOSIS.

From folliculitis of the face of women and the smoother parts of the face of man, to inflammation of the hair-follicles of the beard, the transition is natural and simple. At first sight, it might be supposed that the one was a mere modification of the other, but experience teaches us that they differ not only in outward manifestation but likewise in their habit, cause, and treatment. Inflammation of the hair-follicles of the face is generally pustular, and has been termed, with reference to its chief locality, *mentagra*—that is to say, *sore chin* ; but it must not, therefore, be inferred that it is limited to the chin, for it likewise extends to the upper lip and whiskers, sometimes to the hair of the temples, and sometimes to the eyebrows. It comes to us frequently in the following shape :—A man has for some hours been exposed to cold, perhaps associated with anxiety and fatigue ; at night his face feels hot and itchy, and by the next morning the chin is swollen ; it is pimply ; the pimples being seated around the

hairs, and, in the course of the following day, pustules begin to be apparent, and increase in number until they cover more or less thickly the whole of the chin, the upper lip, and the maxillary region. This is an acute attack of mentagra, but it does not subside and disappear; it is apt to continue in a chronic form and last for many weeks, or even months. Indeed, it sometimes makes its appearance in a chronic form, and may endure for several years.

We have in the Dermatological Collection a water-colour study (No. 565), of mentagra or sycosis affecting the chin and upper lip. The pustules are scattered and isolated, and every pustule is, as it were, perforated by a hair. No. 562 illustrates a case of greater severity, in which the follicles of the beard and whiskers, and also those of the eyebrows and temples, are affected. The patient was a young man, aged 23, and the disease had been in existence seven years. The eruption made its appearance gradually, occupied for three years the right side of the face only, then spread to the left and involved both sides equally. No. 563 is a plaster cast of the lower part of the face of this patient, and a better idea is given of the prominence of the eruption by the cast than by the drawing.

It is evident that mentagra is pathologically a folliculitis attended with suppuration and the formation of a pustule, which envelops the hair at its point of issue from the skin. But the inflammation is apt to present varieties in its manifestation; there may be more or less of superficial inflammation and more or less infiltration, accompanied with thickening and induration of the skin and the formation of tubercles; indeed, it not unfrequently happens, as in the case already referred to, that all these lesions are mingled together, accompanied with incrustation and desquamation. The tubercles by simple growth, but more commonly by aggrega-

tion, sometimes form masses of considerable bulk, which would appear to have suggested to the fathers of medicine the term sycosis, applied to this disease, probably in consequence of these large fig-like growths. But, in unhealthy constitutions, these foci are apt to degenerate into fungous masses and excrescences which present a very remarkable appearance, and may be compared to the pulp of the fig; hence the terms *sycosis fungosa* and *sycosis ficosa*. These cases are happily rare in this country, but are possibly more frequent in other countries, and in the past more than at the present time. I once saw a case of this kind in a medical man, which was taken by his friends for a carcinoma; but my previous knowledge of his liability to sycosis enabled me to diagnose the case correctly. Our nomenclature in this affection is undoubtedly defective, for the term *sycosis* evidently relates to the tubercular and fungous form of the disease, whilst its synonym *mentagra* or sore chin cannot correctly be applied to the eruption when it occurs in the moustachios, in the whiskers, or in the eyebrows and scalp.

It is further to be mentioned that there is a form of mentagra which is associated with loss of the hair and cicatricial degeneration of the skin; but which would, perhaps, be more correctly described as a *lupus erythematosus* accompanied with pustular folliculitis. Its usual seat is the region of the whisker, which it succeeds in epilating more or less completely so as to leave a bald patch of considerable extent, the skin constituting this patch being white and cicatricial, intersected with bands of white fibrous tissue, and roughened on the surface by partial exfoliation of the cuticle. While this state of the skin may be present in the whiskers, sometimes on one side only, or on one side more than on the other, there may be pustules which can hardly be distinguished from those of true mentagra

on the chin and upper lip, and together with this affection, there is very frequently more or less inflammation of the edges of the eyelids.

The symptoms of mentagra are usually of a severe character: there is considerable pain, burning heat, pricking, and stiffness. And these symptoms are aggravated at night, to the disturbance of sleep and the excitement of constitutional irritability and suffering.

DIAGNOSIS.—The signs of mentagra are so obvious as to remove any difficulty as to the *diagnosis* of the disease. Impetigo and eczema, both of them simulate mentagra when they appear in the beard, but the vesico-pustules of impetigo are broad and more superficial, and not so exclusively related to the hairs as in mentagra; whilst eczema, besides being non-pustular, would not be localised in the beard without being present at the same time in other parts of the skin.

PROGNOSIS.—The *prognosis* of mentagra is generally unsatisfactory; it is always tedious and difficult of cure, lasting for weeks, or months, or sometimes years; but, no doubt, eventually getting well.

CAUSE.—The *cause* of the affection would seem to be anything capable of disturbing the state of the general health, and especially of the skin. We are frequently at a loss to discover any symptoms of constitutional derangement, while the patient declares himself to be in thorough health, only suffering from the general irritability which the local affection tends to promote. A large proportion of cases may, perhaps, be traced to exposure to cold at a time when the patient was otherwise in good health; and in that event we are driven to the conclusion that a disorder of innervation, occasioned by the cold, must be the origin of the subsequent phenomena. Or, we may suspect the presence of mal-assimilation and assume that the eruption is a local manifestation of a cause similar to that which,

under other circumstances, would give rise to gout. In company with various other cutaneous diseases mentagra has not escaped the imputation of being contagious. It is said to have been common among the Romans, and to have been transmitted from one to the other by the practice of kissing, which, at that time, was common among men, and a law was passed to prohibit this form of salutation. It has been supposed, also, to have been communicated from an infected person by means of the razor, a suspicion which has suggested the term sycosis contagiosa. And a certain warrant has been given to the idea of contagion by the discovery of a phytiform fungus in the contents of the follicles. Sycosis rarely presents in this country the state of virulence which these speculations would imply, and I have seen nothing in my own practice which could warrant the contagious theory.

TREATMENT.—The indications for *treatment* in mentagra and sycosis are more local than constitutional. The general health of the patient should be carefully scrutinised, and any derangement of function or tone, if possible, corrected. We shall have need of general healthy function to assist in the cure of the local disease. Then, locally we have to subdue inflammation, remove causes of irritation, and these objects accomplished, to stimulate to healthy function. To subdue inflammation, which can alone be attempted at an early stage of the disease, or when under the influence of accidental aggravation, we shall have to call to our aid hot fomentations, water-dressing, and envelopment with some waterproof covering. In the intervals of application of these remedies we must have recourse to the oxide of zinc ointment. Next, as comprising a mild stimulant process, we shall find serviceable—lotions of tar, and ointment of red oxide of mercury, and iodide of sulphur, both very considerably diluted.

The consequence of a sheath of pus encircling the epithelial sheath of the follicle and the root of the hair is naturally to loosen the hair and cause its ejection; and, deducing an analogy from a loose tooth embedded in an inflamed socket, it has been inferred that the hair is an acting cause in keeping up the inflammation of the follicle and of the skin; and this idea has given rise to the heroic method of plucking out the hairs over the whole of the inflamed surface. This severe treatment has been further stimulated by the discovery of a supposed parasitic vegetable fungus amongst the contents of the follicles. I am myself opposed to this plan of treatment. I can see no objection to withdrawing a hair by means of the tweezers when it is loose, just as I would press out the contents of the follicle when loaded with pus, but a general pulling out of every hair on the affected and inflamed skin is, in my opinion, not only barbarous, but absolutely useless. It is the putting in practice of the severest form of stimulation, at a time probably when a palliative treatment may most be required, and at the best it can only be regarded as a stimulant treatment.

PUSTULAR FOLLICULITIS OF THE SCALP.

The term folliculitis naturally awakens our attention to the size and importance of the organ which may be the seat of inflammation; for the cutaneous follicle, although of pigmy dimensions, is as complete an organ as any in the animal economy. We are now observing the phenomena of inflammation as it affects this cutaneous follicle. We have seen it already in the instance of folliculitis rubra, assuming a chronic type and resulting in exfoliation of the epithelium and destruction of the hair. We have seen it in acne vulgaris accompanying the changes usual at puberty, presenting a sub-acute type, and ranging in its forms between mere static hyperæmia

and suppuration. Next we observed it in association with gastric irritation and mal-assimilation, displaying a variety of forms, under the name of *gutta rosea*, the rosy drop; at the lowest round of the ladder being little more than a transitory hyperæmia, whilst in an aggravated stage it constitutes the traditional grog-blossom which Shakespeare so well delineates in his portraiture of Falstaff:—"his face all bubbles, and whelks, and knobs, and flames of fire." Then we come to the follicle of larger dimensions, endowed with the important office of producing and supporting the hair of the beard and face, and here, besides other pathological phenomena, we found suppuration extending to the deepest recesses of the inflected pouch, with a state of congestion not easily to be overcome. It is evident that in the course of our survey, the follicle has been gradually increasing in importance, and that its morbid phenomena are assuming a more independent character.

These observations will prepare us for the comprehension of a remarkable form of pustular folliculitis which is met with in the scalp and has received the Greek name Kerion, literally, honey-comb. Kerion may be described as an acute inflammation of the hair-follicles of a limited portion of the scalp, usually a blotch of an inch in diameter and occurring at the juvenile period of life. Its first symptom is swelling, which increases rapidly and rises to a considerable height. The apertures of the follicles soon become enlarged and their lips tumid, and they pour out a copious exudation of a transparent or semi-purulent viscous fluid; the hairs become loosened and fall out, and then the pathognomonic character of the affection is demonstrated: a hemispherical swelling, smooth and shining, red and angry, devoid of hair, perforated all over with the gaping mouths and tumid lips of follicles from which there issues forth a copious stream of viscous,

transparent or semi-purulent fluid. Here is the honey-comb and there the honey, but the walls of the comb are broader than the open mouths of the crypts, which is contrary to the copy, and it would need a strong poetic fancy to discover any more than a most remote, and by no means palatable resemblance between them. But there is one more sign which must be noted here; the finger applied to the tumid part detects a lax and boggy substratum as if of a diffused subcutaneous abscess, and sometimes of considerable extent. I am induced to think that this peculiar affection was more common in the olden time than it is at present, and that it is the disease to which, from the baldness of surface which it engenders, the word *scald-head* was originally applied. Nevertheless the claim to this popular term is distributed among several of the affections of the scalp.

The description of kerion which I have now given is obviously derived from after-lights which are thrown upon it by our observation of its pathology. A more common picture of the disease may be obtained by supposing a boy's head brought under our notice—extremely tender, the hair clotted and adherent, soaked with purulent discharge, forming a covering which spreads widely beyond the area of the actual inflammation, and allowing of an escape of semi-purulent matter when disturbed. The loss of hair has not yet become visible, nor the actual lesion been discovered, but the experienced eye knows at once what may be expected; there is no other member of the family of diseases of the skin which can present similar symptoms. It is further evident that there is here a state of things which manifests considerable inflammatory action, a condition that must increase and spread unless help can be afforded, and which has already caused enlargement of the sub-occipital and mastoid lymphatic glands.

The disease is not always so widespread as this delineation would lead us to suppose. It may be limited to one or two, sometimes more, blotches, of which the largest does not exceed an inch in diameter, and with these there may be numerous pustules dispersed over the scalp. The matted hair and the incrustation will then be equally limited, while, on the other hand, it may occupy a large portion of the scalp, usually by a confluence of patches or by an aggregation of the larger kind of blotches in clusters. In the study of disease we are always prepared for the plus or the minus, both in extent and severity, differences which are subject to the constitution of the patient, and the disease in question forms no exception to the ordinary rule.

After a palliative treatment, all the symptoms now described will abate, the tumefaction will subside, the integument will resume its normal firmness; the derma, however, will be slow in recovering its wonted appearance; it will remain for a long time of a dull red or purplish colour, the consequence of chronic hyperæmia; the cuticle will continue to exfoliate for a considerable period, and not improbably the chief centres of the disease will remain permanently bald, the permanent loss of the hair being the consequence of the foregone severity of the inflammation, which has destroyed the hair papillæ and obliterated many of the follicles.

DIAGNOSIS.—My description of kerion will have been wanting in clearness and accuracy if the *diagnosis* of the disease is not at once recognisable. It is totally different from ringworm, although it may be combined with it occasionally. It is unlike exuding eczema, which is less circumscribed, rarely restricted to the scalp, and associated with other eczematous lesions of the skin; and it is perfectly dissimilar to the dry and chronic manifestations of favus.

PROGNOSIS.—In reference to the *prognosis* of kerion it may be said that, although capable of doing mischief if neglected, it is susceptible of immediate relief when treated with judgment and discretion. It is not contagious, and it is perfectly curable, two axioms which engender hope. But although easy, it is not rapid of cure, and is apt to drag on in the wake of the constitutional powers of the patient.

CAUSE.—And what, it will be inquired, is the *cause* of kerion—a question which may be answered in two words—nutritive debility. It is an affection of youth, of ten to fifteen or sixteen years of age, and is one of the diseases of the young when congregated in numbers, as in schools, where nature is bitted by the necessities of education, and where the diet is not of a perfectly genial character.

TREATMENT.—In considering the *treatment* of kerion, I shall begin with the case which I took for my introduction to its description. In that case I should order a thorough washing with tepid water and soap, and the disentanglement of the hair. I should then, after carefully drying the inflamed skin, paint it over with liquor plumbi subacetatis, and either cover it up with tarred cotton or oakum or leave it exposed to the air. After the first cleansing I should recommend as a means of prevention of further matting, inunction with the unguentum petrolei or vaseline. The discharge should be absorbed with a soft cloth, as long as it continues to exude, and the liquor plumbi should be repeated night and morning, or even a third time in the day. This treatment, and especially the liquor plumbi, is, in my hands, almost specific. I have seen cases in which water-dressing and envelopment have been suggested by the severity of the inflammation, but as a rule they are generally unnecessary; and poultices of all kinds are specially objectionable. In milder cases, where no coating of crust and matted hair is present, the liquor plumbi

treatment is to be commenced at once, and persisted in until the cure is completed. And where there is redness and exfoliation of the surrounding skin, a gentle friction with the unguentum picis, diluted with the unguentum petrolei, one part of the former to five or seven of the latter, will be found very beneficial.

Above all things, I would caution the surgeon not to puncture the swelling under the belief that he will discover a subcutaneous or a periosteal abscess. He will find nothing but the kind of transparent exudation which he sees pouring out so abundantly from the apertures of the follicles; and, when left to itself, with no other treatment than that which I have already mentioned, the whole of the bogginess and apparent hollowness of the substratum of the skin, as well as the superficial swelling will disappear.

But the real treatment of the disease is involved in the constitutional management of the patient. His life is one of nutritive activity; and he must have abundance of nutritive food, at regular periods, a generous and nutritive diet; by which in this country is meant—animal food, in some shape, three times a day, with the help of a moderate quantity of beer. When we come to our pharmaceutical resources we shall derive advantage from the ordinary nutritive tonics—for example, cod-liver oil, the preparations of iron, particularly the phosphate; and arsenic, in combination with wine of iron.

We are sometimes questioned as to a rest from school duties, to which we reply that it is not the mental work of the schools which does harm, but confinement and restriction, and the sameness and somewhat insufficiency of the food.

PHYTOSIS—DEVELOPMENT OF A NEW GROWTH RESEMBLING A VEGETABLE FUNGUS.

Hitherto we have been considering the ordinary operations of inflammation on the cutaneous follicle, namely, congestion and exfoliation, suppuration and exudation ; and from these, the common manifestations of inflammation, we pass on to a congestion of the follicle accompanied with a trophic change in its epithelium of a special character, resulting, in fact, in the formation of an organic growth resembling that of a vegetable fungus, a substance which, with much propriety, we may term “phytiform.” The fungus-like nature of this substance was discovered by Remak in 1836, nearly half a century ago ; and Remak’s researches were quickly followed up by those of Schoenlein of Zurich, and of Gruby of Vienna. These authors described a plexiform tissue composed of cylindrical fibres, which they regarded as the mycelium of the fungus, off-shoots, or branches proceeding from this mycelium, constituting its vegetation ; and oval-shaped cells at the extremities of the branches representing the sporules or seeds. Gruby’s first observations were made on favus of the scalp, but he discovered subsequently a similar fungus in aphtha and afterwards in mentagra ; he therefore suggested the appropriate term *Nosophyta** to represent a group of diseases possessing this phytiform character ; while to the individual examples of the fungus, he gave the names of porrigophyte, aphthophyte, and mentagrophyte.

Let us now proceed to a review of those affections of the skin in which this phytiform structure has hitherto been observed. It may be premised that in every instance, save one, namely, the bed of the nail, the seat of origin, or, as it were, the

* *νοσος*, a disease, *φυτον*, a plant.

habitat of the phytiform structure is the follicle; and the precise seat of the fungoid, the deep layer of the epithelium, that which corresponds with the rete mucosum of the rest of the skin; moreover, in some instances it has a tendency to overflow the follicle, and spread to the neighbouring rete mucosum. Therefore, in seeking for the fungoid, we must direct our attention to the cutaneous follicles, and in them it may be found much more extensively possibly than has heretofore been suspected; the sole factors of the morbid substance being to all appearance hyperæmia, and a growing cell-tissue. The first discovery of the fungoid substance was made, as I have already remarked, in favus of the scalp, and it has since been met with in ringworm, in mentagra, in certain chronic forms of lichen, termed lichen circinatus and lichen marginatus, the latter being the Indian ringworm, in the pityriasis versicolor of Willan, in the morbid cell-structure of onychogryphosis, and in a form of impetigo, called impetigo contagiosa. All these affections I have already discussed in a former lecture (page 41), and I only allude to them now as an illustration of the morbid phenomena of the cutaneous follicles; their particular description may therefore be passed over cursorily.

FAVUS.—Favus is a disease which is rare in England, but common in Scotland, France, and Spain, and in several other countries. The word signifies “honey-comb,” because, at its full development, the phytiform or favous substance forms a shallow cup at the mouth of the follicle, each cup being pierced through the centre by one or two hairs, and the aggregation of a number of these cups of a sulphur yellow colour, bears a fanciful resemblance to a honey-comb. When seen quite at the commencement, we should detect nothing but redness or hyperæmia at the aperture of the follicle;

in a short space of time a flat yellow disk is perceptible around the shaft of the hair, the disk spreads by its circumference, and seems to grow thicker as it proceeds, swelling at its peripheral border into an elevated ridge, which constitutes the rim of the cup. At this point its growth may become arrested, as happens when the favi have a scattered distribution ; or, it may be checked in its further progress by meeting with the advancing border of a neighbouring favus ; or a cluster of follicles of various extent may, by throwing up their favi at the same moment, cause a blending together of their crusts, and form a continuous layer of considerable extent, raised at the margin and pitted or dimpled over the rest of its surface. In this more severe case many of the hairs are torn from their follicles and only a few of the cups remain perforated by standing hairs. It is to be borne in mind that these cups are perfectly smooth on the surface ; they are, as it were, varnished by the unbroken cuticle which stretches across them, and, when recent, they are brightly yellow in colour. With time, however, they fade into a greyish-white tint, they become dry and brittle, and are apt to be broken, filling the hair with whitish mortar-like fragments. When they break spontaneously, or in consequence of moderate pressure, the fracture takes place in the hollow of the cup, and the edges become rugged ; while an unbroken disk of the surface of the crust frequently remains adherent to the shaft of the hair.

This is what we see ; but we have likewise to remember that the favous matter has very probably been some time in existence before it reached the surface of the skin and made itself visible. It has, in fact, taken the place of the deeper layer of the epithelium, the formative or mucous epithelium, so as, in some instances, to reach the papilla of the hair, and by its pressure to cause the latter to

become atrophied. It has pressed forcibly on the walls of the follicle, and forced them to dilate, and on the surface of the skin it has not only induced a state of atrophy of the papillæ cutis, but has very considerably attenuated the derma itself. By means of *envelopment* we can remove the whole of the crust of morbid substance in an unbroken layer, and without difficulty, and upon examining its under surface we shall find that each favus presents a conical root, or plug, which fits into the follicle, very frequently reaching to its fundus. While, if we inspect the exposed derma we shall perceive it to be red and shining, and modelled by the under surface of the favous crust; the follicles presenting conical holes, some of them open to the fundus and deprived of hair, while in others a part of the hair-root remains, and the hair may be still standing. A state of more complete devastation can scarcely be imagined.

It is not, however, to be supposed that all this mischief can be going on without considerable inconvenience and suffering to the patient. There are—pruritus, soreness, and active inflammation, excited by the morbid process; excoriations and sub-cutaneous abscesses are wont to form, and the sub-occipital and mastoid glands to become swollen. The local disease may be arrested and the skin may heal; but the hair will only partially recover; and the most seriously injured portions of the scalp will remain permanently bald.

The Dermatological Collection affords numerous examples of favus; the preparations range in number from No. 513 to 524; and illustrate favus of the scalp, favus of the lower limbs, and favus in large crusts distributed over the greater part of the body.

TINEA CAPITIS.—The history of tinea is somewhat different; the phytiform substance is dry, its fibres

entangled with the cells of the epithelium; it ramifies into the adjoining epidermis and permeates the very hair itself. The implication of the mucous epithelium and rete mucosum is not so complete as in favus, and it would seem as if, not the deeper portion and in fact the whole substance of the mucous layer were involved as in favus, but merely the superficial portion and in particular the stratum of laminated scales. Thus it might happen that the morbid cell-proliferation simply proceeded from the mucous layer instead of being an actual substitution for the mucous layer itself; and thus possibly we might explain the absence of the severe symptoms and irremediable devastation which accompany favus. There can be no doubt that the same pathological principle is in operation in all the examples of phytosis, although their manifestation and consequences may be and are widely different.

The preparations of tinea capitis in the Dermatological Collection range in number between the specimens 498 and 504; and illustrate both the form of the disease and the altered structure of the hair.

TINEA CIRCINATA.—The insignificant tinea circinata affords a curious example of the subdued character of the morbid process; doubtless in consequence of the smallness of the follicle. Nor, indeed, can it be admitted to be a tinea at all in the sense of disorganisation and destruction of the hair. The force of the hyperæmia is expended on the congestion of the follicle and the development of the papule; while the trophic transformation would appear to be little else than a secondary consequence of the hypernutrition of the epithelium. For as soon as the hyperæmia of the papule subsides, the property of fungoid formation would seem to be exhausted.

Of the tinea circinata we have in the Dermato-

logical Collection a considerable group of illustrations, ranging numerically from No. 505 to 512; showing the form and distribution of the rings, sometimes in connection with *tinea capitis* and sometimes alone; the greater number at the juvenile period of life and some in the adult; some apparently idiopathic in their origin, and others the consequence of contagion.

LICHEN MARGINATUS.—The papule of *lichen marginatus*, the ringworm of India, appears to me to be identical with the *tinea circinata* of adults when the latter invades the trunk of the body and limbs; but in its more common locality, namely, the periphery of the perineum and pubes the papulæ are larger in size, approaching in that respect to the pimples of *mentagra*. In both of its forms as well as in *mentagra* the fungoid has been discovered, resembling in microscopical characters the fungus of *tinea capitis*, but differing from it in the scantiness of its production.

VERSICOLOR.—A pigmy representative of the same group is presented to our notice in the *pityriasis versicolor* of Willan; for if we isolate one of the component islets of this map-like eruption and examine it attentively, we observe that the border of the little patch is raised like that of an incipient disk of *tinea circinata*, and very frequently is papulated along its edge. But we are scarcely in need of such a proof that the affection takes its origin in the follicles; the blotches are always punctated and the apertures of the follicles either reddened by congestion or stained with pigment. It is evident likewise that the pathological process in operation within the follicles spreads to the surrounding epidermis, and that the latter in consequence becomes loose and friable and subsequently flakes off. This looseness or sponginess of the cuticle is due to a fungoid growth similar to that of *favus* and *tinea*,

but modified in configuration by its seat of development in the minuter follicles of the general surface of the skin. It must also be remarked, that while favus and tinea are affections of the juvenile period of life, lichen circinatus and lichen marginatus, as also pityriasis versicolor, are diseases of the adult.

IMPETIGO CONTAGIOSA.—Through the kindness of my colleague, Dr. Tilbury Fox, I have the opportunity of showing you a carefully drawn water-colour study of the vesiculo-pustular eruption to which he has given the name of "impetigo contagiosa." It is an eruption attacking children of delicate organisation, is common on the face and hands, and in the circumference of the mouth; and prevails in several members of a family and in several families of a neighbourhood, at the same time. It is essentially an affection of the follicles of the skin, and within its vesico-pustules the fungous growth has been discovered which we have just been considering.

DIAGNOSIS.—Let us now, in a *diagnostic* point of view, glance back at the pathognomonic features of those diseases of the follicles which are remarkable for the development in their epithelium of a fungoid or phytiform substance. In favus this substance is considerable in quantity; when newly formed it is paste-like in texture, it distends the cavity of the follicle, it overflows the aperture of the follicle forming a circular cup-shaped disk around the hair, and meeting similar disks proceeding from other follicles, is converted into a lamina of considerable thickness and extent. It destroys the hair by obliteration of the papilla pili, but it produces no effect on the organic structure of the hair.

In tinea capitis the fungoid substance is greyish in colour, smaller in quantity, drier in nature, and attacks the hair even to a greater extent than the epithelium of the follicle. The hair, sound in

favus, is in tinea almost completely made up of fungoid filaments and granules; it is somewhat swollen within the follicle, but dries up after reaching the atmosphere, and becomes faded, twisted, and brittle, breaking off close to the skin and leaving stumps that suggest a comparison with a stubble-field or an ill-shaven beard. There is no loss of hair, no eradication of hair, but the hairs may be said to be in a complete state of atrophy, atrophy from disorganisation, from the conversion of the normal horny structure into a bundle of empty cylinders and empty cells. How different a picture from that which I have previously drawn of favus.

Tinea circinata, again, presents a new set of symptoms; the pathological lesion is a small pimple, in dermatological language, a lichen; and as the lesion has a tendency to spread into an annulate figure, it becomes a *lichen circinatus*, or, according to the old style, a *herpes circinatus*. The chief seat of the morbid process is the epithelium; perhaps the hair participates in the disease, but the hair is minute and of secondary importance, and the active phenomena of the affection are to be looked for in the follicle alone and in the pimple which is the consequence of congestion of the vascular coats of the follicle.

Tinea corporis as *lichen circinatus*, is met with at the same time with *tinea capitis*, on the same individual, and in other members of the same family; but it is also met with, independently of *tinea capitis*, on the skin of the adult, sometimes presenting a profusion of circular rings, and culminating in the *lichen marginatus* or Indian ring-worm, which, although frequently multiple, is generally restricted to a single ring spreading around the pudendum and outwards upon the abdomen, the podex, and the thighs.

From the yellow paste and yellow cups of favus, the atrophied hair and epithelial sordes of tinea,

and from the annulate forms of lichen circinatus, we pass on; in the next place, to the little island-shaped or measles-shaped patches of pityriasis versicolor congregated into broad archipelago-like blotches, often of considerable extent; never found on the scalp like favus and tinea, never isolated and scattered like lichen circinatus, but met with almost exclusively on the trunk of the body, and remarkable for the exactness of their symmetry; sometimes taking their centre at the axillæ and spreading out into a kind of tippet; sometimes in the groins and forming an apron; and sometimes in the middle line of the hollow of the back, along the linea alba, or upon the convexity of the abdomen; brownish or yellowish in their colour; sometimes conspicuous for pigment, sometimes for pruritus, and sometimes for disintegration and disorganisation of the cuticle. This latter symptom, oftentimes, however, entirely absent, has encumbered it with the inappropriate name of pityriasis. Moreover the rottenness and friability of the cuticle, which may occasionally be rubbed off with slight pressure by the finger, is due to the fungoid organisation common to the whole of this group of affections.

Then, in a superficial pustule of the integument, a vesico-pustule in fact, of the nature of impetigo, and for its reputation for contagiousness, termed *impetigo contagiosa*, the fungoid growth is presented of a similar character to that of tinea already mentioned. Next, we have the fungoid growth which has been detected in some cases of mentagra. And, lastly, as far as at present known, is the occurrence of the fungoid in the midst of the crude and imperfectly-developed nail-cells of onychogryphosis.

PROGNOSIS.—With regard to *prognosis*, it may be said that the whole of the follicular diseases associated with fungous proliferation in the epithelium and hair are remarkable for their chronic tendencies. All of them may linger for many years and give rise

to serious annoyance; but none of them are dangerous to life. In the estimation of the public there is no disease more dreaded than common ringworm, which, without treatment, may be prolonged throughout the whole of juvenile life, the period usually devoted to education. And the Indian ringworm comes home to us with a stereotyped reputation for extreme obstinacy and difficulty of cure.

CAUSE.—In speculating as to the nature of the *cause* of the phytiform affections of the follicles of the skin, our first undertaking must be to explain the occurrence of idiopathic folliculitis—such, for example, as we see illustrated in simple mentagra. A man in his usual health is exposed to cold; as a consequence of that exposure an inflammation of the skin of the face takes place, in which the larger follicles of the skin are chiefly implicated, the follicles become inflamed and suppurate, and, once established, the inflammation pursues a chronic and desultory course, and is very difficult of cure. Must we not, in such a case, infer that the innervation of the skin is temporarily disturbed by the chill, that the function of the follicle is arrested or deranged, and that the morbid phenomena, possibly from the nature of the organ attacked, have a tendency to become permanent. Or, we may take another illustration from the history of Indian ringworm: this affection is met with very abundantly in the hot and steaming districts of Burmah; and its commonest seat is the equally hot and steaming region of the perinæum. The climate of India leads to frequent ablutions of the body in cold water. May not an arrest of function of the follicles, occasioned by cold bathing, explain the phenomena which subsequently ensue, an attack of congestive or pimply folliculitis, which is centrifugal in its growth, and, spreading to the circumference, constitute the pimpled ridge which we term *lichen marginatus*?

My object is to show that a common and every-

day cause, such as we readily admit to be the influential cause of catarrh, may equally become the cause of congestion and inflammation of a pouch of the derma enjoying similar conditions with the mucous membrane of the nares, namely, the cutaneous follicle. Now, in the hyperaemic state of mentagra, as also in the similar state of lichen marginatus, the fungoid structure, which we have just been considering, is commonly met with; and the question suggests itself:—Whence does it originate? My answer to this question would be,—that it arises from aberration of nutrition and development of the formative cells of the epithelium, which, instead of running their usual ascending course to the completion of the perfect epidermic scale, are arrested at their earliest stage, and expend their formative power in a proliferation of their nuclear contents. The nuclear elements of the cells are not devitalised by the hyperaemic congestion; they retain the power of growth. Their growth, however, will no longer be that to which they were functionally destined, but an irregular growth conformable to the laws of organic matter, but not conformable to the laws of function; no longer constituting an epithelial coat, but bursting into a wild proliferation corresponding with the growth of elementary cells uncontrolled by the animal organism. Or, I might put it more simply by suggesting that a disordered producing organ must necessarily be the occasion of a disordered product; and the effect of that disorder, in the instance before us, is evinced by the occurrence of a low form of organic growth resembling that of vegetable fungi. In this way I explain the monstrous abnormal cell-growth of favus, the perversion of cell-growth both of epithelium and hair in tinea capitis, and the similarly abnormal growth in lichen circinatus, lichen marginatus, mentagra, pityriasis versicolor, and impetigo contagiosa.

But this is not the commonly received doctrine with regard to the phytiform substance; it is generally believed to be a real plant, a true vegetable fungus, and certain differences in its microscopical appearance have led to its distinction by several names; for example, the fungoid of favus is termed achorion; that of tinea, trichophyton; and the fungus of pityriasis versicolor, microsporon.

Now, it is a curious fact that all of these fungoid affections of the follicles have a greater or less tendency to contagion, and the inference has been freely adopted that the actual material of the contagium is the fungus plant, its growing part, and possibly its sporule. It is thought that this fungus-matter may be conveyed from one individual to another, either by the atmosphere, by the use of combs and brushes, or by other modes of direct transmission; that having reached the skin, possibly the cavity of a follicle, it develops a parasitic life, and begins to grow and pursue the course of multiplication which has already been described. In this sense the contagium is a vegetable parasite, the disease, the mere growth of the parasite; in a word, a parasitic disease; and then follows the mischievous corollary: that the cure of the disease must be the extermination of the parasite. There is a plausibility in the suggestion of parasitism which has taken the place of proof, and the theory has been accepted almost universally. But I would venture to observe that because the mechanical process appears to be so simple, it is not necessarily a fact; indeed, it is open to very considerable doubt, and, after a great deal of thought devoted to the subject, I feel it impossible to give my adhesion to the parasitic hypothesis.

As I have so recently, namely, in a former course of lectures (page 41), thoroughly explained my views on this matter, I shall abstain at present from saying more. I shall only remind you that the

sporular contagium can only come in contact with the surface of the epithelium, whereas the seat of the disease is its deeper and formative portion ; that the contagion of these diseases, which from the simplicity of the process should be common, is, with the exception of tinea, extremely rare, and in some instances, for example, pityriasis versicolor, altogether doubtful. Moreover, the advocates of the parasitic contagium require a particular state of health of the person preparatory to inoculation, a state favourable to its reception ; in other words, as a preliminary, there must be in the infected persons a deteriorated state of health, that is to say, a state of disease.

TREATMENT.—As all treatment should be founded on a correct appreciation of the cause and pathology of a disease, the treatment of these affections, particularly of that most important one, ringworm, should have for its object to improve the nutritive powers and functions of the patient, and mitigate the local disorder by some mildly stimulating application, such as the red oxide of mercury ointment, the iodide of sulphur ointment, and tar ointment, all of them considerably diluted. I need not dwell on the means of promoting nutrition and nutritive power ; I have frequently illustrated these points in detail in the course of these lectures, and more particularly during the last session, when these same diseases were especial objects of consideration. But I may just observe in reference to the diversity of character of these affections that, while a gentle stimulant may be sufficient for favus and tinea, one of the most powerful character is required for Indian ringworm. On the other hand, a light pencilling of lichen circinatus, with the compound tincture of iodine, will be all that may be necessary, and a moderate friction of pityriasis versicolor with the sulphuret of potash ointment will remove it after a few applications.

DISEASES OF THE SEBACEOUS SYSTEM.

The sebaceous system claims our notice both in respect of its function ; and of its organ, the sebiparous gland. The sebaceous substance is an important element in the normal economy of the skin, and is a compound material consisting chiefly of fat, water, and cell membrane. Like other secretions, it may be produced in *excess* or it may be *deficient* in quantity. Its physical qualities are also subject to variation :—it may be too *soft* or too *dry*, and the relative proportions of its constituents may undergo a similar change, for there may be too large or too small a proportion both of its fat and of its water. Moreover, it may be stained with colouring fluids, or be charged with pigmentary matter.

These possible varieties in the quantity and quality of the sebaceous substance are expressed by the terms *steatorrhœa* or *seborrhœa*, signifying excess of sebaceous secretion, and *asteatodes* denoting absence of sebum ; whilst variations of colour have been distinguished by the names of *steatorrhœa flavescens*, *steatorrhœa nigricans*, and *steatorrhœa cœrulea*.

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DISORDERS OF FUNCTION.

STEATORRHœA.—*Steatorrhœa* in its commonest form, namely, *steatorrhœa simplex* or *steatorrhœa oleosa*, as it is apt sometimes to show itself on the face, is illustrated by the model No. 571, which affords a striking example of this affection. The face is “thickly coated over with a greasy sebaceous secretion. On the forehead the sebaceous deposit is stained in various places by the effusion of blood from superficial abrasions, probably caused by the nails ; and one of these encrusted abrasions on the

bridge of the nose presents an areola of inflammation around its base." This model has been named by Hillairet "acne fluente," a term not to be commended, but which is suggestive of the double fact, of excessive production of an abnormally fluid secretion and of its association with some degree of congestion and swelling of the follicles.

Another model, No. 574, represents the face of a young woman of strumous constitution, seventeen years of age. The principal seat of disease in her case is the side of the nose, on which may be observed a "concretion of epithelial exuviae and sebaceous substance, attended with ulceration at two or three points." She had been for some years subject to acne and eruptions of the skin, and the disease is named by Lailler "eruption acneiforme," a term which fails to recognise the steatorrhœa altogether. The quality of the secretion in these two cases is evidently very different, in one oily and diffluent, in the other dense and adhesive. In the latter character it gives rise to adherent crusts, and the attempt to remove these crusts has probably been the occasion of the abrasions and superficial ulceration. Just as in the former instance there had been bleeding from superficial abrasions with circumjacent inflammation.

Cases so marked in their deformity as that represented by the Model 571 are far from being common; but nevertheless even the approach to an unctuous and greasy face in the case of a young lady is a serious affliction and merits our best and most careful attention.

Deposits of dry concreted sebaceous substance, on the face of elderly persons, have already been considered in a former lecture; but I may allude to them here to remind you that they are sometimes associated with asthenic superficial ulceration of the skin of a strunious and occasionally of a cancerous type.

CHROMOSTEATODES or coloured sebaceous flux is sometimes indebted for its tint to the same sources as those which give colour to the urine and the bile, and sometimes to an excessive formation of the normal pigment cells of the skin. Of the former kind is No. 576, an illustration taken from the Dermatological Collection, and termed steatorrhœa flavescent; it is a portion of "hair from the head of a lady in her 82nd year; the hair has a bright golden yellow colour, and is stained with a gummy golden secretion, sticky between the fingers, which accumulates on the head, and stains of a yellow colour not only the hair but also her night-cap and night-dress. The secretion is most abundant on the occiput at the roots of the long back hair, and its large quantity in that situation may be perceived in the preparation. The smell of the secretion is unpleasant, and the colour yields but little to soap and water. In youth the lady's hair was of a jet black colour, but for many years past it has been white. Fifteen years ago she suffered from jaundice; a similar attack was repeated ten years afterwards, but passed completely away; and it is since the last attack that the change in the hair now described has taken place." Her husband, a medical man, to whom we are indebted for the specimens and for the notes on which these observations are founded, observes:—"It is remarkable that this secretion should be confined to the scalp, found on the surface, and taken up by the hair." The lady enjoys good health, but is somewhat unduly encumbered with adipose accumulation.

Then again, in No. 575, we have a water-colour drawing of the face of a young lady, aged 24 years, showing a state of hypertrophic production of the dark pigment of the skin, in association with steatorrhœa of the follicles, that is to say, *steatorrhœa nigricans*. "The discoloured secretion appeared on the eyelids and blackened a handkerchief when

wiped off. The patient was of a highly nervous temperament and subject to severe vomitings, and with the vomited fluids an appreciable quantity of pigmentary matter could always be distinguished." I have given a full description of this young lady's case in a former lecture. I shall therefore content myself with observing here, that it represented a state of hypertrophy of the pigment of the skin, excreted not by the skin alone, but also by the mucous membrane, associated with considerable disturbance of the organic nervous system and with anæmia; possibly with a state of the blood which has been recognised under the name of melæmia.

CAUSE.—Enquiring into the *cause* of steatorrhœa with a view to its treatment, we shall find the necessity of excluding steatorrhœa nigricans for the moment from consideration. Excess or defect of sebaceous secretion must both be ascribed to want of healthy vigour of the skin. Steatorrhœa simplex is found in young persons of feeble constitution, one of the examples which we have just been considering having occurred in a strumous girl; steatorrhœa flavescens and asteotodes are commonest in advanced life; and one form of dry sebaceous concretion remarkable for its firmness of adhesion is especially associated with the ill-nourished skin of old age. Steatorrhœa nigricans, on the other hand, betokens a deeper seated affection of the economy, one, in which the organic nervous system is seriously involved, and consequently implies a grave derangement of health.

TREATMENT.—In the *treatment* of these cases, saponaceous ablutions constitute a valuable remedy, frictions with soap laid on by the hand and subsequent abundant rinsing with cold water. Occasionally it may be necessary to stimulate the affected skin, for which the hypochloride of sulphur ointment will be found very efficient. Then, in the intervals of washing and the use of the sulphur ointment, the

face may be painted or sponged over with the desiccant lotion of oxide of zinc, calamine, and lime-water which I have so frequently had occasion to refer to. The latter lotion is also useful in steatorrhœa nigricans, and forms a covering of protection to the implicated portions of the skin, which are frequently hyperæmic and often abnormally sensitive. In every case the ferro-arsenical mixture is of service; while in steatorrhœa every form of tonic remedy will be indicated.

DISEASES OF THE SEBIPAROUS GLAND.

SEBUM-GLANDS, like all other gland-structures, are liable to pathological changes resulting from derangement of nutrition. There may be *arrest* of nutrition giving rise to *atrophy*; or *excess* of nutrition, active or passive, constituting *hypertrophy*. The sebaceous organ individually is comparatively insignificant, and therefore atrophy may occur singly or in groups without attracting attention, the more especially as such a pathological condition must almost necessarily be associated with general defect of nutrition of the affected region of the skin, to a greater or lesser extent. As a substantive disorder, atrophy of the sebiparous glands can, therefore, very rarely come under our notice for treatment.

Not so, however, *hypertrophy* of the glands, which is not uncommonly met with. In a former lecture I have described a peculiar form of hypertrophy of sebaceous glands resulting from aberration of nutrition, which plays as it were a double part, diminishing the quantity of the surrounding dermal tissue and so producing a thinning of the skin on the one hand, and increasing the bulk of the coats of the glands and of their ducts on the other. Attenuation of the tissues from defective nutrition renders the sebaceous glands visible through the skin, while thickening of the coats of the glands and of their ducts contrib-

butes to make them more perceptible. The same failure of power which reduces the bulk of the dermal tissue occasions detention of the sebaceous secretion within its ducts, and therefore the whole series of the pathological phenomena must be regarded as of an asthenic and passive character. By a process similar to this, considerable numbers of sebaceous glands, abnormally large and white in appearance, may occasionally be seen in an ill-nourished skin, sometimes grouped in irregular lines and sometimes agglomerated in an almost solid stratum with an apparent absence of inter-glandular tissue. This state of the skin is usually met with in the delicate integument of females.

MOLLUSCUM ADENOSUM.—Sometimes hypertrophy of the sebaceous glands makes its appearance in a more obvious and conspicuous form; the excretory duct of the follicle is evidently distended with a dry sebaceous substance; the whole gland, to its extremest ramifications, is similarly loaded; the coats of the ducts are also thickened, so that a round mass is formed, which rises above the level of the integument, stretching and pushing the superjacent layer of the skin before it, and constituting a small tumour which, in its largest dimensions, rarely exceeds the bulk of a white currant. I make use of this simile because there is something in the contour of the little tumour which suggests the idea of a currant; it is apparently segmented like a peeled orange, its summit is depressed, and with the round spot of dried sebaceous substance in the centre, may be said to be umbilicated; while, at the same time, it is smooth and semi-transparent from distension, permitting the white material of its contents to be visible through the attenuated skin. Its size and prominence are both consequent upon the extent of its impaction and the period of its growth; at first it is simply hemispherical, then the base of the gland

may be pushed up to the level of the skin ; while, in a still more advanced stage, the skin may contract beneath its base, and from being sessile render it somewhat pedunculated.

Such is the picture of a remarkable little sebaceous tumour occasionally met with on the skin ; I have named it *tuberculum adenosum*, a substantive term ; but it has likewise been called *molluscum*, from its resemblance to those soft tumours of the integument, more or less pedunculated and of great variety of size, which have received that name. The true molluscous tumour is composed of soft fibro-cellular tissue, and fairly deserves its title ; not so, however, the little adenode tumour that we are now considering, which from its anatomical structure must necessarily be hard, and under no circumstances whatever can be entitled to the designation of a soft tumour. Moreover, for a reason presently to be stated, it has also been termed *molluscum contagiosum*.

With a sharp point of any kind we can always extract particles of sebaceous substance from its excretory duct ; this is generally dry near the surface, but becomes softer the deeper we go, and not unfrequently a little milky fluid, an oily emulsion in fact, will at the same time exude. These little adenode tumours may occur singly or in clusters. Now and then a small agglomerated cluster will combine to form a single tumour. They are met with most commonly on the face, where the sebaceous glands are large and abundant, upon and around the eyelids ; this and the neck are the habitats most frequent in children and delicate women ; whilst in adult men they are usually distributed over the trunk of the body. In general, they are pale, the skin being simply stretched, without hyperæmia ; but when they have been rubbed or injured they are apt to become inflamed, and in rare instances to suppurate. Sometimes when the distended skin is much attenuated it gives

way to the pressure, and then the little gland in the form of a minute white globe, may be squeezed out of its tegumentary pouch, leaving the latter hanging by its pedicle like a small pendulous bag.

In the Dermatological Collection, No. 578 is a careful water-colour study of the ordinary aspect of these little glandular tumours at various stages of growth. No. 577 is a coloured lithograph, showing their distribution on the skin, in two of their commonest localities, namely, the face and the neck, and especially the region of the eyelids. The disease is described in the catalogue as "a state of hypertrophy of the sebiparous glands, with accumulation and inspissation of their contents. The subject of the illustration was a child between three and four years of age; he was strumous in constitution, and the morbid affection had existed for several months. The pathological features of the disease are, the globular tubercles with central hilum, their pale colour and lobulated figure, and their evident construction of a thin layer of skin stretched tightly over a contained globular mass. On the neck of the child the little tumours present various stages of growth, and two have become united into a confluent tumour."

We have, besides, a very interesting model of this affection numbered 580, representing the side of the neck and breast of a girl of the age of nineteen:—"The tubercles are of small size, of a pale red colour, and several are surmounted with a small cylinder of dried sebaceous substance which has been compressed through the hilum. There were twenty of these small growths on the right side of the neck, and seven or eight on the left, and the constitution of the patient was strumous. The affection is rare in France, and Lailler does not recognise it as molluscum, but calls it 'acne varioliforme.' He very truly observes that the enlargement is not due to the accumulation of sebaceous substance

in the central duct of the gland alone, but that the lobes and lobules are equally distended; and that the umbilication of the little tumour is produced by the expansion of the superficial lobules of the gland around the orifice of the excretory duct, the latter being retained in position by the interlobular septa, which are, as it were, inserted into it. Lailler besides, contributes curious confirmation to the presumed contagious nature of the disease; for without knowing it to be an affection which had given rise to much controversy as to its contagiousness, he remarks that a young girl of scrofulous diathesis who occupied the same ward and passed the whole day with the patient was also attacked with a similar eruption."

The pathological structure of the little tumour is partly shown in the engraving 579, wherein the appearance of the under surface of the mass when enucleated from its tegumentary pouch is exhibited. The lobulated and lobular structure of the hypertrophied gland is clearly perceptible in consequence of the opaque whiteness of its contained substance, the enclosing envelope being transparent. The contents of the gland under the microscope appear to be made up of large round and oval-shaped cells, which retain their figure and suggest the idea of a pile of eggs; and a small quantity of a milky-looking fluid holding in suspension oil globules and shreds of cell-membrane.

DIAGNOSIS.—The diagnosis of these little tumours is so obvious that they are not likely to be mistaken for anything else, whilst their evident glandular composition removes them from the chance of confusion with the true or areolo-fibrous molluscum.

PROGNOSIS.—As a consequence of abnormal growth in a weak and languid or torpid skin, the *prognosis* of the affection must be one of tardiness of progress and long duration, although perfectly harmless in itself and easily removed by therapeutic means.

When they occur on the trunk of the body they are slow in attracting the attention of the patient. They grow without irritation or pain ; but when in consequence of rubbing or pressure they become inflamed, they are then somewhat painful, but the inflammation entails their cure. On the face they are necessarily more noticeable and more subject to external sources of irritation than elsewhere.

CAUSE.—The foregoing narrative of the history of molluscum adenosum prepares us to recognise a state of debility or want of proper tone of the skin, being in one case constitutional and in another local. Of its constitutional source we can entertain no doubt when we meet with it in strumous infants and young persons, and in the mother of a strumous family, particularly where the children are poorly fed and ill-nourished. In such persons there undoubtedly exists a predisposition to the disease, and its occurrence in several members of the same family, and also of the same district of a town or village at the same time, has led to the idea of its being contagious. And, a very remarkable instance of presumed contagion is indubitably furnished by Lailler in his history of the subject of the model No. 580 ; this patient, lying in her bed, was visited by another patient, a strumous girl, from a distant part of the ward, and this second girl was attacked with a similar disease. Such a piece of evidence is the more impressive from the fact that the affection being rare in France, had not been recognised by Lailler as the *molluscum contagiosum* of Bateman and other British authors ; this we must infer from the name which he gave it, “*acne varioliforme*,” and, therefore, when he notes the contagiousness of the disease his evidence is all the more valuable from being unprejudiced.

I have always expressed myself very strongly against the hypothesis of contagion in this affection.

I can understand an endemical prevalence of the disease: but its contagion appears to me a very doubtful problem. It is noteworthy that the seat of the disease should be the cutaneous follicle, and that it should participate with other affections of cutaneous follicles in the property of contagion. In the other instances of contagious folliculitis a vegetable fungus is the presumed cause of the contagion, but in molluscum adenosum no such material agent has hitherto been discovered, and the contagium has been ascribed to the sebaceous cells already mentioned as being the principal constituents of the sebaceous mass. My own view of a contagium in such cases as these is not that of one derived from the local affection, but from the atmosphere, which I can conceive to be contaminated by an unhealthy person, and rendered capable of exciting in another unhealthy person a similar series of vital phenomena.

The circumstance of the comparative rarity of molluscum implies that it must have a spontaneous origin, even if we are obliged to submit to the notion of its subsequent transmission by contagion. Indeed, we have not unfrequently the opportunity of seeing it generated by the ordinary habits of social life. For several years past I have been accustomed, when a case of molluscum adenosum in the adult came before me, to inquire at once whether the patient had been taking a Turkish bath, to which the answer was almost invariably in the affirmative. And I have been thereby led to the conclusion that the stimulation of the glandular system of the skin by the heat of the bath, assisted by the process of shampooing, is an active cause in the production of this affection. So that we may very reasonably conclude that any cause giving rise to a lowered tone of the gland, accompanied with deranged nutrition, may become a cause of molluscum adenosum.

This view of the case is curiously corroborated by an illustration for which I am indebted to my colleague, Dr. Tilbury Fox. In a former lecture I had occasion to draw your attention to the production of a folliculitis of the skin by the operation of iodide of potassium, bromide of potassium, and tar, upon the general organisation of the individual. The folliculitis in question has been termed "acne," which is suggestive of the form and appearance of the eruption, and it may very fairly be likened to a blind boil; the pathological fact, however, being, that iodide of potassium, bromide of potassium, and possibly some other substances administered as internal medicines are capable of setting up a state of irritation of the follicles of the skin of the nature of inflammation, which, generally chronic, may present some variety of form, conformable, not it would seem, to the nature of the remedy, but to the normal pathology of the organ affected; and, suggesting that while an irritant of the skin must necessarily produce inflammation, that inflammation may be manifested in a variety of different forms, such forms being governed by the physiology of the organ which is the seat of the disorder.

I have already pointed out the fact that molluscum adenosum may be produced in the follicles of the skin by the heat, sweating and shampooing of the Turkish bath, and I now present to you carefully executed drawings of molluscum adenosum occasioned by the internal use of iodide and bromide of potassium. It is strange how fact narrows the field of theoretical speculation. No one acquainted with the features of molluscum adenosum can doubt that these are faithful portraits, although in both instances, and especially in the iodide of potassium eruption, the tubercles are of a gigantic type. And presuming that the iodide of potassium was administered for syphilis, we have then to deal with the complication of molluscum adenosum excited

by the iodide of potassium in a syphilitic dia-thesis.*

Molluscum adenosum, as it ordinarily presents itself, is a scattered eruption, but in the case of the child who had been under the influence of the bromide of potassium, the eruption exhibits a tendency to aggregation as is seen in the large oval-shaped blotch on the forearm. The crusted patches on the face, and that of the upper arm, present a close resemblance to an encrusted impetigo.

Dr. Tilbury Fox has published this case, of which the following is a brief outline:—The child's father died of consumption a few months before its birth; it was in good health up to the time of vaccination, being then three or four months old. Twelve days after vaccination a papulo-vesicular eruption of no great importance made its appearance on the skin, and continued with intermissions for three weeks. Between two and three months later the child was seized with vomiting and convulsions; the vomiting continued for a week, and for these symptoms a grain of bromide of potassium, three times a day, was prescribed. The child took about seven scruples, that is, 144 grains in about twenty-five days, when the present eruption showed itself, first at the seat of vaccination, the then invalid portion of the skin, and subsequently on the face, arms, and buttocks. Pathologically the eruption was a hypertrophic and pustular folliculitis, and where isolated follicles were attacked it took on the molluscous type. Here, then, is a combination which may be presumed to be a bromine folliculitis, for the quantity taken of the iodide of potassium, namely, three-quarters of a grain daily for six days, was too small

* I have recently met with an instance, among my own patients, of a molluscum adenosum, developed on the leg of a gentleman, of sensitive constitution, who was taking iodide of potassium for chronic constitutional syphilis. He presented several of the ecthymateous papulos commonly occasioned by iodine: but only one well-marked adenodo tubercle of the type here described.

to merit attention, developed in a strumous constitution, while the case of the adult was one of iodine folliculitis developed in a syphilised constitution.

May we not infer that in Lailler's case, instead of contagion, the cause may have been the administration of the bromide or of the iodide of potassium. Or possibly the stimulative action of baths, which we are bound to admit, after the evidence before us, into the category of causes of molluscum adenosum.

TREATMENT.—The treatment of molluscum adenosum must be constitutional and prophylactic, as well as local, in those cases which are due to feebleness of the general system, while local treatment alone may be sufficient for the kind which I have described as proceeding simply from local causes. The ordinary constitutional treatment of strumous debility is clearly indicated in the former series, such as nutritious and generous diet, cod-liver oil, iron, phosphorus, and quinine; while for local treatment the little tumours may be touched with the tincture of the hydrochlorate of iron or compound tincture of iodine. I have remarked on the comparative rarity of this affection in France, and it curiously happened, that one of the finest examples I have ever seen was shown to me, many years ago, at the Hospital Saint Louis, by Cazenave. The little tumours had all been touched with nitric acid, and I have no doubt that the cure was speedily effected. I myself prefer a saturated solution of potassa fusa, which destroys them at one application; but these are remedies which can only be efficiently used by the medical man, and are not to be trusted to the hands of our patients. Inflammation set up in the tumours by any means will occasion the enucleation of the gland and subsequent cure of the disease. And in their pedunculated form they may, as a more expeditious method of cure, be snipped off with the aid of the scissors.

In those rare cases which are due to the irritative

action of bromide and iodide of potassium, the indication is plain, barring weightier considerations, namely, to stop the use of the irritant and treat both the constitution and the local disorder upon rational principles.

DISEASES OF THE SUDORIPAROUS SYSTEM.

The function of the sweat-glands is intimately allied with that of the sebum-glands. In certain localities the perspiratory glands alone are found, for example, the palm of the hands and sole of the feet; whilst in other situations the cutaneous glandular system is almost exclusively sebiparous. The essential differences in the secretion of the two forms of glands are, that the one is chiefly composed of water and the other of fat. Nevertheless the greasy nature of the perspiration of the hands is universally known, and the cursory observation of a perspiring face will prove the issue of an aqueous fluid from the excretory ducts of the sebaceous follicles. Moreover, as we are fully aware, the secretion of both presents a powerful odour due in some measure to the presence of fatty acids.

In like manner the diseases of the two systems have also their resemblances; the disorders of the perspiratory system as well as of the sebaceous system, admitting of a primary division into functional and organic. The diseases of *function* are manifested by excess and defect of quantity and alterations of quality; while the *organic* diseases of the sudoriparous glands are represented by atrophy, hypertrophy, and inflammation.

FUNCTIONAL DISORDERS OF PERSPIRATION.

ANIDROSIS, or absence of the perspiratory secretion, is sometimes *general* but more frequently *partial*. Physiologically we meet with considerable

diversity amongst different people as to the quantity and freedom of perspiration; and our inquiry leads us to the discovery that sensible perspiration is almost unknown in certain instances. We meet with examples of this absence of perspiration reported in our Dermatological Literature, and when they occur, the defect of secretion is partly compensated by insensible perspiration and partly by increased action of the kidneys and alimentary canal.

EXCESS OF PERSPIRATION.

A superabundance of perspiration is indicated by the terms idrosis and hyperidrosis, which express an abnormal and profuse exudation of sweat from the whole or from parts of the skin, and when this excessive discharge is associated with hyperæmia or febrile symptoms, the disease is termed *sudatoria*. I have known instances in which the hyperidrosis has been restricted to one side of the body or even to a portion of one side. One of my own friends used to perspire freely on one side of his face and on the opposite side of his chest at the same time, while the rest of his body remained dry. I have seen one half of the head and face dripping with sweat whilst the other half was free from moisture. And I have watched the perspiration accumulate in the hollow of the hand of a young girl until it ran over the edge. But hyperidrosis more frequently comes before us in the shape of a disease, when it occurs in one or other of the regions of the body, for example, the axilla, the perinæum, the hands and the feet. In both the latter localities the secretion is often so considerable as to soak through the cuticle, which then becomes white and opaque and thickened from imbibition of the secreted fluid. In one case where the cuticle was sodden in this manner there was a burning heat of the palms whilst the backs of the hands were remarkable for their coldness. This

affection of the hands and feet is always accompanied with a sensation of heat, together with tenderness of the integument, which, in the case of the feet, renders walking exercise extremely painful.

I have noted in some of these cases a peculiar and somewhat vivid redness of the affected skin; in one instance the centre of the palm was conspicuous for its paleness, whilst the cushion around it presented a bright crimson blush, and closer examination of the redness showed it to result from the presence of a multitude of minute dots which were evidently sudoriparous glands in a state of congestion.

In my own experience, hyperidosis of the hands and feet, in its morbidly exaggerated form, has shown itself more commonly in the male than in the female sex. I do not here allude to the damp and perspiring hands of young persons, however considerable the quantity of secretion may be, but to cases in which excessive secretion is accompanied with symptoms of inflammation of the sudoriparous glands, as indicated by heat and tenderness, and often by the visible manifestation of the congested glands through the cuticle. In three cases, of which I have kept notes, the disease first showed itself at the ages of nine, nineteen, and thirty-one, and at the time of my observation had been in existence for periods of two, five, and fifteen years. The elder patient was a man of nervous temperament, and the disorder was confined to his hands. In the second case, a young man of twenty-one, the disease was limited to the feet; whilst the third, in whom the affection was seated chiefly in the hands, inherited the morbid tendency from his mother; with him it had commenced at the age of nine, and was of increased severity at the age of twenty-four. He was one of seven children, three males and four females; all the males suffered from this disease, whilst the females escaped.

ALTERED QUALITY OF THE PERSPIRATION.

The perspiration may present *alterations* from the normal standard both in odour and in colour. We are not unfrequently consulted for a disagreeable smell of the perspiratory secretion, an affection which has been denominated osmidrosis and bromidrosis. And when this aberration of quality occurs in a young female it becomes a matter of serious importance to the patient, although not otherwise affecting her health. The offensive odour is usually like that of onions or garlic, or even asafoetida, and unfortunately is excessively pervading. I have known a drawing-room made disagreeable by the presence of perhaps the prettiest and most graceful of its inmates. Servants suffering in this manner are unable to keep their place, as the smell is detectible, not only when the person is present, but also in rooms in which he may have been for a short time occupied. The seat of the disagreeable exhalation, in these cases, is usually the armpits, but offensive smells are likewise given off by the feet and hands in persons who are not wanting in habits of ordinary cleanliness.

Another kind of odour occasionally perceived as an emanation from the human body is a mouse-like or musky smell; this is independent of any perceptible increase of perspiration, and is usually associated with dryness of the skin.

Into this same category must also be admitted the occurrence of an odour of the skin which is disagreeable to the patient but not perceptible to his family and friends. We might be consulted in such a case, and it would be very inconsistent with the philosophy of medicine to regard the complaint of our patient as trivial, simply because we felt a difficulty in comprehending it ourselves. Let me adduce an example:—A literary man, a personal friend of

my own, of middle age, was seriously annoyed with a smell which pursued him wherever he went, and which, he believed, to proceed from his skin. He described the odour as resembling that of a room packed with dirty people, but it varied from time to time ; sometimes it was like tallow, and occasionally reminded him of an open drain. It was not detectible by his family or by myself, and the inference was suggested that it might be an odour appreciable only by himself, or result possibly from a deranged state of his own olfactory nerves. Nevertheless, it tormented him for twelve months, and made him uncomfortable, particularly whenever he went into society. Conceiving the possibility of its being due to some derangement of his general health, although he had no feeling of illness of any kind, I subjected him to a tonic alterative treatment. But it would seem that my alterative was not powerful enough, for there was no change whatever in his symptoms. Another kind of alterative, however, was unexpectedly at hand. In the course of the winter he experienced a chill, which issued in pneumonia, and he was confined to his room for five weeks ; on the invasion of this attack the bad smell immediately disappeared, and he has never been troubled with the slightest renewal of it since. Phenomena of a kind similar to this are common enough in medical experience, and lead us to the inference that offensive odours, like other symptoms, may be a mere consequence of derangement of function or disturbance of health.

CHROMIDROSIS.—Alteration of colour of the perspiration has been termed *chromidrosis* ; and the principal varieties of colour that have been observed are :—yellow, blue, and red. Yellow perspiration, no doubt, derives its hue from the same source as that which gives colour to the urine and to the bile ; red perspiration, which has also been called hæmi-

drosis, obtains its colouring pigment from the blood ; but blue perspiration is more difficult to explain. I have seen a few cases of red-stained perspiration, but they are extremely rare ; in one of them the exudation proceeded from the axillæ of a delicate girl of fourteen years of age ; there was no reason to suspect any deception, and she wore no article of dress from which the colour could have been derived. Cases of this kind usually occur in hysterical patients, and they are sometimes found associated with disordered menstruation.

ORGANIC DERANGEMENT OF THE PERSPIRATORY APPARATUS.

ATROPHY of the sweat-glands has been observed and noted by several authors ; but the wasting of these glands is generally associated with defect of nutrition of the rest of the skin. I had occasion, a good many years ago, to examine with the microscope some skin which had been taken from a patient suffering under universal calvities ; the skin was reduced to the condition of a loose fibro-cellular web, scantily supplied with blood-vessels, whilst its follicles and sweat-glands were scarcely discernable. This atrophy of the sweat-gland, however, is by no means a constant accompaniment of total calvities ; as the skin in that affection is frequently clammy and damp.

HYPERTROPHY of the sweat-glands is a state of the perspiratory system very difficult of diagnosis, on account of the normal minuteness of the gland and the depth of its implantation within the tissues of the skin. Nevertheless, there is reason to believe that an increase of growth of the gland and a thickening of its fibrous envelope, with that of its excretory duct, may occasionally take place.

HYPERÆMIA of the sweat-glands is of more frequent occurrence and is attended with a peculiar redness of the affected part of the skin, sometimes suffused but more frequently punctated. It is most observable on the hypothenar cushion of the hand, in persons of delicate constitution who have suffered much from the effects of hot weather, or in clinical patients who have endured a continuous and profuse hyperidrosis. The skin when closely inspected has the appearance which is presented by an artificially injected integument, the little capillary ball of the inflamed gland being distinctly visible. With this state of the glands there is generally a sensation of prickling and itching and more or less tenderness and heat.

This state of congestion of the sweat-glands and of their follicles results, very naturally, in the occasional exudation of the serous element of the blood and the formation of vesicles at the apertures of the excretory ducts ; or, may be, from adjacent papillæ. Such, in fact, is the origin of the minute vesicular rash denominated *miliaria* and sometimes *sudamina*. But the latter term is applicable more correctly to vesicles containing the sweat secretion which has infiltrated through the epithelial coat of the duct after it has reached the cuticle. In the latter case the fluid contents of the vesicle would have the character of sweat, with an acid reaction, whilst in the former, the fluid would be alkaline. The diagnosis between them has, however, no practical importance ; inasmuch as both kinds of vesicles have their origin in that state of congestion of the cutaneous tissues which accompanies excessive or prolonged perspiration.

There is good reason to believe, that in every case of hyperæmia of the skin, the follicles and the glands must participate in the general congestion ; it is, therefore, always difficult to establish the precedence in favour of the vascular rete of the follicle

or of that of the papillæ cutis. The attention of Dermatologists has lately been directed to a dermatological trifle which draws its chief interest from the discussion to which it has given rise and from its having elicited a good deal of careful and intelligent work on the part of some of the most esteemed British Dermatologists of the present day, for example, Dr. Tilbury Fox, Mr. Hutchinson, Dr. Thin, and Dr. Robinson, now of New York. Mr. Hutchinson met with a case, not rare, and yet not common, in which minute vesicles were developed on the hands and fingers ; the affection might have been classed under the head of eczema, but other symptoms of eczema were absent, and in fact it was too trivial to be called eczema. The vesicles are developed, chiefly, under the thick cuticle of the hand and sometimes run their course without reaching the surface ; they resemble a minute globule of fluid, and in appearance have been compared by Mr. Hutchinson and Dr. Tilbury Fox to sago-grains. They are sometimes isolated, sometimes in small clusters, and dispersed scantily over the hands and feet. They rarely empty themselves on the surface, their contents being usually absorbed, but they nevertheless at their decline, cause a slight amount of desquamation of the surface of the cuticle. The subjective symptoms of this trifling eruption are ;—a little soreness and prickling ; but the essential fact in connection with it is, that it occurs in the relaxed and weakly skin of sensitive and debilitated persons, chiefly women, and more frequently in the summer than at other seasons of the year ; some stress has been laid upon its recurrence from time to time, but that must be regarded not as a special appurtenance of the eruption, but as a consequence of the permanence of the debilitated state of the skin ; for if we give tone to the integument and vigour to the constitution, the annoyance will immediately cease.

From its appearance in the form of minute globules and occasionally of small multilocular blisters, Mr. Hutchinson named it "pompholyx," a word rarely employed at the present time or used synonymously with pemphigus, and to give the term a more exact significance he affixed to it the word "cheir" thus making it cheiro-pompholyx. So that, cheiro-pompholyx represents an eruption of the hands and feet which verges, on one side, towards eczema and on the other towards pemphigus. Furthermore Mr. Hutchinson considers that it has certain neurotic proclivities which bring it more nearly in alliance with herpes than with either of the before-named vesicular diseases. And the debilitated state of the constitution which lies at the foundation of the disease favours that view.

Dr. Tilbury Fox, however, noting the occasional connection of the eruption with idrosis, also a consequence of relaxation and feebleness of the skin, regards it as a disorder of the perspiratory system, and in conformity with that diagnosis has assigned to it the subjective designation of *dysidrosis*. In his view of the case the minute drop of transparent fluid contained in the vesicle is not serum effused from the blood through the capillary vessels, but sweat detained in the sudatory ducts.

Dr. Tilbury Fox has favoured me with a demonstration of microscopic sections of skin taken from a patient suffering under this affection; in these sections the sudoriferous duct within the corium has the appearance of being swollen; and at its upper end, the epithelial cells are loosened and displaced. It is easy to conceive that these epithelial masses may crumble away from the surface of the tube and obstruct the free passage of the sweat secretion; but in the rete mucosum another change is observed:—a globular or oval-shaped cavity is formed by the accumulated secretion, and so gives rise to the appearance of the sago-grain vesicle.

The accumulated fluid by equable pressure on all sides has constituted a condensed epithelial cyst which will retain the fluid in the midst of the rete mucosum and effectually prevent its escape through the spiral duct of the horny layer of the epidermis. This pathological mechanism appeared to me to be quite obvious in the sections which I had the opportunity of examining.

In the next place, Dr. Thin and Dr. Robinson puncture the globule and so get possession of its fluid, which they find, not acid like sweat, but alkaline and albuminous, and therefore identical with serum. And, Dr. Robinson, by means of the microscope is led to believe that the source of the fluid is a congested papilla, which exudes the serum into the deeper stratum of the rete mucosum, and there forms the serous globule which is seen through the cuticle, and in that situation has been likened to a sago-grain. The reason, he conceives, why the exuded fluid is absorbed instead of forming a vesicle, is, that it never passes beyond the limit of the rete mucosum; and that when a vesicle is formed on the surface, it results from the disintegration of the superimposed cuticle and the escape into the broken tissue of the fluid from beneath.

In respect to the *treatment* of cheiro-pompholyx it has been noticed that ointments have no local influence on the disease, the proper applications being such as gently stimulate the feeble nerve power of the skin, such as the liniment of ammonia, or a desiccant lotion composed of lime-water and oxide of zinc; while the fitting constitutional treatment, both in respect of the neurotic tendencies of the affection and the general debility of the system, is the citrate of iron and quinine.

HYDRO-ADENITIS, which to express the meaning of its author requires the addition of the adjective *pustulosa*, is an inflammation of the sweat-gland

resolving itself in the formation of a minute abscess which rises gradually to the surface of the skin and then bursts after discharging a small quantity of pus. This trivial affection was described by Verneuil in 1854; he terms it a phlegmon of the sudoriparous gland, making its appearance as a crop of minute inflammatory tumours and occurring most commonly in the axilla, and around the nipple and anus, although they may likewise become developed wherever sudoriparous glands are found. There can be no pathological reason why such a disorder should not take place; but it must necessarily be rare, and, for my own part, I have never had the opportunity of observing a case of the kind.

TREATMENT.—The general considerations for treatment of derangement of function and organic disease of the sudoriparous apparatus are, to secure as far as possible a well-nourished skin. With this object in view the ordinary contrivances for ablution, friction, and manipulation of the skin or shampooing, should be regularly practised. And if further powers are required we may have recourse to regimen and tonic treatment, particularly to the use of arsenic. In dry states of the skin the integument ought to be anointed with the concrete oil of theobroma, or with the unguentum petrolei or vaseline. And perspiration where deficient or absent may be promoted by the Turkish bath.

Excessive perspiration may be corrected by bitters with sulphuric acid, and the local use of lotions of tar, or of aqua calcis containing some desiccant powder such as oxide of zinc or precipitated chalk. Astringent lotions have also been commended by authors, such as Hebra's tincture of tannin, one drachm to six ounces of spirits of wine; a solution of alum; a lotion of chloruret of lime; or a lotion of sulphide of calcium.

Hebra practises a local treatment for hyperidrosis of the hands and feet, which he deems specific and

certain of cure. It consists in closely covering up the affected parts of the skin with the emplastrum plumbi softened to a convenient consistence by melting with linseed oil. This composition should be thickly spread on linen rag, and the plasters renewed twice a day for a period ranging between one week and three; each time the plaster is removed the skin should be carefully dried with a towel, and afterwards dusted over with some desiccant powder such as oxide of zinc or chalk, but not washed, ablution being reserved until the new skin is sound and firm enough to bear it. I have no doubt that Hebra has found this treatment very satisfactory; he speaks most positively as to its almost invariable success; but I must confess that I have seen a case treated by him in this way in which the treatment had failed. Nevertheless his process is correct in principle and well worth adoption, and should be repeated from time to time and perseveringly until the result be attained.

Sudamina are best treated by means of a thin cream-like paste of prepared chalk and lime-water, which may be repeated several times a day. This application cools the skin, absorbs superabundant moisture, and protects the surface from excoriation.

Coloured perspirations and foetid perspirations may be treated locally in the same way; whilst internally they call for the use of remedies which shall relieve obvious derangements, and tend to strengthen the constitution as well as the skin.

Similar reasoning may be applied to hydroadenitis, whether its congested, vesicular, or exudative form, in all of which the lime paste will be found the most useful local application, whilst internally we have recourse to a nutritive regimen and tonic medicines.

Mr. President and Gentlemen,

I have now completed the present course of lectures, the *ninth* which I have had the honour of delivering from this chair, and I have at the same time completed the agreeable task which I set myself at the beginning of my undertaking, namely, that of going through the whole series of cutaneous diseases in regular succession, beginning with eczema, and ending with the disorders of the glandular system of the skin. Of the manner in which the subject has been dealt with, I have only to say that I have done my best, whilst, at least, I cannot be accused of having shrunk from the duty or from the labour, so long as it remained unaccomplished. I have always endeavoured to keep in my mind that dermatology is a branch of general medicine to be practised by all its practitioners, and, therefore, that it ought to be assimilated as completely as possible with the two great branches of practical medicine, that of the physician, and that of the surgeon. I have regarded dermatology as a study intended for the benefit of mankind, and not of individuals; as the study of an organ placed by nature more nearly within our reach than any other, and, therefore, as one which should as far as possible be most thoroughly known. I have taught that there is nothing special in the structure and pathology of the skin, and consequently that there should be nothing special in its practice, beyond that which results naturally from familiarity and experience of the subject; and I have further ventured to suggest that the best key to a knowledge of the unseen organs of the body would be a thorough knowledge of that which is constantly under our observation, namely, man's outer investment, the skin.

I cannot, however, take my leave, without expressing my most grateful thanks to the Council of the College of Surgeons for their enlightened assistance in helping me to found a chair of dermatology within these walls, and I feel sure that they will have reason to believe that they have not misplaced their trust. Dermatology is already illumined by several, I may almost venture to say, many, ardent, honest, and careful workers, men who will not allow the soil to be idle or to waste from want of proper cultivation, so long as perfection remains to be attained. And I trust that the perfection of dermatology, with a constant recognition of the public good, will be the ruling object of all those my successors who may have the honour of filling this chair.

I have now, Mr. President and Gentlemen, to bid you, not a short farewell, a farewell for a season, but in fulfilment of an obligation which, by turns, befalls us all; a lasting farewell, as an incumbent of this chair.

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July, 1878.

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